

Interdisciplinary Literacy as Complex Communication with Reality

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Abstract: Nowadays, we are living in a multimedia environment which is a natural synthesis of various forms of communication. A similar situation thus occurs in the field of art, being an equally natural consequence of the gradual disruption and blurring of boundaries between individual art forms and their synthetic fusion in the multimedia expression of contemporary art. Moreover, if such interdisciplinary tendencies are reinforced in the field of artistic production and interpretation, they must be respected in the process of communication as well. Thus, in addition to a wide range of field-specific literacies in the domain of art, such as visual, literary, or music literacy, etc., careful attention must also be paid to a comprehensive view of the current art scene. Such a view is associated with interdisciplinary literacy. This summarizing study is focused mainly on the theoretical basis of interdisciplinary literacy and places the emphasis on interpretive models that are closely related to comparative analysis, especially with applied information theory and hermeneutics.

Keywords: interdisciplinary literacy, method of comparison, hermeneutics, information theory, expectations, visual literacy, music literacy, multimedia creation, collective work (Gesamtkunstwerk), interpretation, communication

Introduction

“Visual Literacy refers to a group of vision-competencies a human being can develop by seeing and **simultaneous integrating other sensory experiences**. The development of these competencies is fundamental to common human learning. When developed, they enable a visually literate person to distinguish and interpret the visible actions, objects,

symbols, natural or man-made, that they encounter in their environment. By using these competencies creatively, they can communicate with others. By operating these competencies receptively, they can comprehend and enjoy the masterworks of visual communication.”

The above-stated definition of visual literacy, formulated by John Debes, who first used the term in 1969, confirms the

interdisciplinary nature of literacy (the part of the text in bold). Seemingly, it consists mainly in a complex counterpoint of specific literacies of science, the humanities, and general cultural and artistic disciplines – e.g. mathematical, media, science, finance, media, digital, or information literacies, but also cultural, readers', movement, visual, music, etc. Although these field-specific literacies have a common denominator, the specific factors of individual fields predominate significantly. However, interdisciplinary aspects are applied even at the basic level of literacy, that is, “an individual’s ability to read, write, and count” (Pedagogický slovník, 2013, p. 85). We are interested in the second, higher, level of literacy, though. That is “the ability to apply specific knowledge and skills such as reading literacy, computer literacy, etc.” (Pedagogický slovník, 2013, p. 86).

Word, image, and sound as a rule of three of interdisciplinary literacy

The crux of our interest – at least in the first phase of interdisciplinary relationships – is the connection of visual and verbal communication, i.e. the ability to translate visual information into a verbal form. In his study *Visual Literacy or Literary Visualcy*, W. J. T. Mitchell

confirms the necessity of this essential connection:

“Visual Literacy has been around for some time as a fundamental notion in the study of art history, iconology, and visual culture. This is a strong and seemingly unavoidable metaphor comparing the acquisition of skills, competence, and expertise (quite distinct levels of mastery) to the mastery of language and literature. Seeing, it suggests, is something like reading. But in what way, exactly? And how does seeing differ from reading? What are the limits of this metaphor?” (Mitchell, 2009).

This is a direct quotation of W. J. T. Mitchell’s opening paragraph, which closes with a question: “What would happen if we considered our task to be a kind of research in and teaching of reading which is based on models drawn from seeing and the visual system?” (Mitchell, 2009). This reversal of roles is strongly justified on two levels. The basic one is the relationship between vision as a naturally acquired basic skill (called “the universal language of nature” by George Berkeley) and “spoken and written ‘natural languages’, which are cultural constructions based on arbitrary, symbolic conventions” (Mitchell, 2009). This elementary connection is an essential prerequisite for communication as an opportunity to pass on information about what is seen. We also should mention a term used by Barbara Stafford, who calls this basic skill “visual com-

petence” and considers it “a necessary but far from sufficient condition for the more advanced and specialized skills we might want to call visual literacy – that is connoisseurship: rich, highly cultivated and trained experience and techniques of visual observation.” (Mitchell, 2009).

The ability to translate visual information into a verbal form as a reversal of the roles of word and image is also accentuated by Marie Fulková: “The interweaving of the ‘visible’ and the ‘expressible’ is the basic cultural interface through which we read the visual text.” This mutual interconnectedness of an image and words is clearly demonstrated in phrases such as “read information from an artwork”, etc.

Numerous quotations on this elementary level of interdisciplinary aspects of literacy are related to a certain distance, caused by my specific focus on artistic comparison, i.e. on the level of interdisciplinary literacy. In this phase of “two-voice counterpoint”, it may be referred to by the pair of terms “word and image”, also used by Mitchell. Additionally, this phrase clearly expresses the shift from vision and its verbal expression on the level of basic competencies to visual and verbal literacy.

As an example of reversed roles on the higher level of “applied” interdisciplinary literacy, I will mention the reform of the Constance School.¹ The core of this reform was the reversal of the roles of interpretation and perception – in other words, a turn from works to readers. Thus, what becomes crucial is not the interpretation of the literary text but its perception. After all, the process of perceiving literary texts is also the core of reading literacy. This illustrative example seemingly does not follow the interdisciplinary aspect of applied literacy. However, this is a fundamental misunderstanding. The need for interdisciplinary dialogue led the founding members of the group to host regular (since 1963) interdisciplinary thematic colloquia called *Poetik und Hermeneutik*. The name of these famous Constance School colloquia provides a bridge leading to the methodological connection of the theories of interdisciplinary literacy and artistic disciplines. As its positive consequence, the interest in interceptive models has been revived. In the polyphonic counterpoint of the methodological rigmarole of the 1970s and 1980s, these models, in my opinion quite unjustly, fell into oblivion. One of these

¹ “The term Constance school – or Constance School of Reception Aesthetics – refers to a group of literary theorists, critics, philosophers and historians who worked at the University of Constance from the second half of the 1960s and promoted a new concept of literary science.” Sládek, O. et al., *Dictionary of Literary Structuralism*, Brno, Host, 2018, ISBN 978-80-7577-479-8, p. 361.

neglected interpretive models is modern hermeneutics, with its progressive variant, Hans Georg Gadamer's hermeneutic concept. One of the typical features of Gadamer's hermeneutics is the turn from interpretation to communication, the essence of which is perception. And communication is one of the crucial aspects of interdisciplinary literacy. However, it is definitely not the only link to hermeneutics, as will be demonstrated in the course of this study. The reversal of the roles of word and image certainly does not rule out the opposite, though. An illustrative example in which the image plays the role of the text is the function of the image in the Christian Middle Ages. The didactic intention of sacral painting was precisely formulated by Pope Gregory the Great in the renowned letter to Serenus, the Bishop of Marseille, at the turn of the fifth and sixth centuries:

"To adore images is one thing; to teach with their help what should be adored is another. What text is to the educated, images are to the illiterate, they read in them what they cannot read in books. Thence, an image is intended for the commonalty to read. If someone would like to paint images, do not prohibit him from doing it but at all costs eschew worshipping them." (Chazelle, 1990, p. 139)

Therefore, mediaeval paintings were not intended for viewing but for reading. A very specific role in this "didactic" reversal of the roles of seeing and reading was played by what were called the "speech scrolls". Painters themselves also realised that paintings served the role of a sacred text, which is confirmed by the statutes of the Sienese painters' guild from 1356:

"Since by the grace of God we are endowed with the ability to reveal to the ignorant and unacquainted with Latin the miraculous deeds achieved by virtue and in the name of the virtue of our sacred faith, (...) let it be said that nothing, however insignificant, can ever be taken into account, let alone resolved, without these three assumptions: first, it is necessary to have the means, second, it is crucial to know how to do it, and finally, third, it is imperative to have the will to do it." (Šmahel, 2017, p. 27).

Although the relationship between image and text in mediaeval sacral painting is a specific problem of interdisciplinary literacy, it plays a significant role in the correct "reading" of mediaeval images by today's viewer.

So far, we have dealt only with the two-voice counterpoint of word and image. As a third voice, a musical object² will be added. Its phenomenon is not

² Professional terminology distinguishes a musical object, the essence of which is a traditional cultivated sound and a sound object formed by "non-musical sounds" (concrete and electro-acoustic

only a tone as a cultivated sound but also a specific sound or electro-acoustically produced sound (a sound object). In this triad of phenomena of interdisciplinary literacy, the word plays a dominant role as a comparative vantage point, into which the orthogonals³ of both other phenomena – an image and a musical object – converge. It is no coincidence that the beginnings of the artistic comparative method are connected to fine arts and literature, and literature played the same role in the genesis of comparing music to other artistic disciplines. However, music is also closely related to the grammar, morphology, and syntax of a language, which is often used as a means of illustrative interpretation of musical language. Thus, the motif as a fundamental tectonic unit is associated with a word, a theme with a simple sentence, the theme field (the relationship between the theme and the intermediate sentence) works as a complex sentence, the relationships between themes in a sonata form exposition as a compound sentence, etc. We could continue further. Another common denominator of both languages – literary and musical – is structured time. At the same time, however, it is crucial to be aware of their specificity which arises from their differ-

ent phenomena and leads to consequent differences.

Space and time and their role in communication with a work of art

An important factor in communication with an artwork is the role of space and time in the dynamic relationships of its overall structure. Lessing's rigid division of art forms into temporal and spatial is a thing of the past. The knowledge that time and space cannot be separated was accepted as early as 1905, when Albert Einstein presented his theory of relativity at the Prussian Academy of Sciences. And it certainly applies not only to physics and natural sciences in general but also to aesthetics and art theory:

“... The evoked aesthetic experience, the artistic image, is, in any case, complete, it shows a unified reality, inseparably existing in space and time. From the aesthetic point of view, every art creates by its own specific means a full-bodied spatial-temporal viewing.” (Ujfalussy, 1967, p. 83)

Although we are fully aware of the existence of time in an artwork – in terms of the communicating of perceptive time

music, music for tape). In this study, the term “musical object” will be used as a term covering and combining both options.

³ “Vantage point” and “orthogonality” are terms referring to a linear or central perspective. The vantage point is the centre (central point) to which lines called orthogonals converge.

as possible potential time – and the similar position of perceptive space in music, it should be emphasized that whilst the relationships between shapes in an artwork are determined by space, the main means of structuring a musical piece is musical time.⁴ Nevertheless, the role of perceptive time in the communication with a work of art is important, though subconsciously underestimated by most viewers. Artists themselves acknowledge the importance of perceptive time, which is confirmed by the following consideration by one of the leading contemporary Czech painters, Vladimír Kokolia:

“Vision is as important to me as painting. Sometimes I even feel that almost anyone can paint pictures but almost no one can see them. Not that it would be so difficult, but you need to allow the painting some time to open – albeit just three minutes. In my life, I have seen very few people who would voluntarily stay in front of a painting for such a long time. There are plenty of artists, but there is a lack of spectators. But it is they who transfer pictures to art. Art galleries, places where most artworks gather, are full of runners, not viewers. Not only do these runners miss the main message that these “dumb faces” have to offer, but they also suffer from guilt that they should like something because it is art. A lot of goodwill is wasted; even though

it would suit the purpose to choose only one or two paintings and give them the time that would otherwise be wasted by reading the caption – after the initial moment of boredom, the common space of painting and sight would reveal itself.” (Výtvarná výchova 2 / 1992-93, p. 36)

The cause of this dismal state, so suggestively described by Vladimír Kokolia, is the passive approach to the work of art, and one of its factors is the misbelief still followed by most of the recipients that an artwork is perceived as a whole, unlike a musical composition, which is associated with gradual development in time. However, an artwork can be statically perceived as a whole in the initial phase of getting acquainted with it. Then it is time for gradual “wandering” in the visual field of the image, and this phase unfolds over time. The importance of this active process of perception of a work of art is emphasized by the French philosopher and aesthetician Maurice Merleau-Ponty:

“If I had to say where the image I am watching actually is, I would feel abashed. For I do not look at it in the way one looks at a thing, I do not direct my gaze upon it where it is, my eye wanders in it, as in the nimbus of Being, I do not so much see the picture, as see *according to* the picture and with it.” (Merleau-Ponty, 1964, p. 164).

² For more information see: Bláha, J.: Výtvarné umění a hudba. Tvar, prostor a čas I/1, Prague, TOGGA 2012, pp. 26-28 and 180-193.

Merleau-Ponty's wording "... my gaze wanders inside it, as if it were roaming in the nimbus of being..." evokes a feeling of volatile wandering in the picture in an organic, i.e. spontaneous time course. The perceptual time of wandering in communication with the picture thus contrasts with the structural musical time, which is based on a controlled relationship between the antecedent and the consequence - that is, between the preceding and the subsequent events - which is crucial for the probabilistic relationships of information theory. Information theory shares the fate of hermeneutics. However, it is necessary to realise that its being neglected applies to the theory and history of artistic disciplines, i.e. interpretation. Considering literacy, we are, however, interested in communication with a work of art. Here, an important role is played by the applied information theory - that is, in diverse modifications of specific artistic disciplines, which hide behind names such as the theory of expectations, communication theory, etc. Not surprisingly, it was studied by such renowned researchers as Jakobson, Eco, Piaget, Lévi-Strauss, the Russian semiologists, etc. - that is, mainly structuralists.

Its definite advantage is the ability to capture the basic relationship of the dynamic aspects of processuality. And

that is the relationship between the preceding and the following event, in other words, the relationship between the antecedent and the consequent, even in the subtlest details.

This ability is associated primarily with structured time, which is most prominent in music. Applied information theory is thus particularly suitable for the interpretation of tectonic aspects of musical compositions, for the following reasons:

1. musical meaning is qualitatively different from the meaning in fine arts or literature, mainly as a result of its being a markedly specific phenomenon, to which it is difficult to apply interpretive models of these fields;
2. as emphasized above, music is played out in the process of time as a structure based on the relationship between the antecedent and the consequence, and applied information theory is best able to cover the dynamic nature of this relationship on both the micro-tectonic and macro-tectonic levels;
3. applied information theory thoroughly maps the relationship between redundancy and randomization⁵ as decisive factors in the relationship between information and entropy - and this is where gestaltic and structural applications differ considerably;

⁵ Redundance - predictable regularity; randomization - the opposite of redundance

4. it very systematically and thoroughly covers the constant variability of the relationship between conventions and norms and their disruption by the concept of style as an internal system of probabilities evoking expectations;
5. it affects not only the genesis of meaning but also the process of its formation and the role of deviations and their variants as increasing the amount of information included. The structuring of this process is mainly related to the inherent meaning and its relation to information, associated with the stage of development of the inherent meaning as an articulation of dynamic aspects of the tectonic process;
6. the tectonic process of a musical work can justly be described as a stochastic process, as an application of the Markov chain, in which the probability of an event is dependent on the event that precedes it;
7. in terms of the relationship of tectonics to structure, information theory reveals the dynamic interaction of assimilation schemes and their disruption as a process of adjusted transformations and thus emphasizes the crucial need for modifications as a system of organic functioning.
The structured process of relations

between the preceding and the subsequent events – i.e. the antecedent and the consequent – is not connected to the musical-structural time only but also to the process of the formation of musical meaning. Therefore, it will be discussed in more detail in the next part of our study focused on the relationship between form and content.

A necessary prerequisite for applied information theory is a structure with dynamic relationships between individual elements, which are based on the possibilities of the choice of probabilities. There is no doubt about its contribution not only to the interpretation but also to communication with music. And what about fine art? Especially pictures, which are static and, according to the received wisdom, an artwork is perceived as a whole? Such a belief is as conservative as the division of art into temporal and spatial. All works of art are spatiotemporal, and therefore include interactive events, both in the process of creation and in the process of perception and interpretation. There is a good reason why Rudolf Arnheim pays attention to information theory in his study *Entropy and Art*,⁶ especially in connection with Art informel and similar tendencies in the art of the second half of the 20th century, as well as Umberto Eco in his pub-

⁶ Arnheim, R.: *Entropy and Art: An Essay on Disorder and Order*, University of California Press, 1971.

lication Opera Aperta.⁷ Procedurality as a relationship of the preceding and the subsequent events is also applied in the perception of an artwork in general – i.e. not only in the specific transformations of the 20th century. Psychological aspects of the perception of reality show the possibilities of probabilities (perceptual possibilities) and the role of experience in shaping perception.

The organism, always forced to “choose” among the unlimited number of possibilities which can be related to a given retinal pattern, calls upon its preceding experiences and “assumes” that what has been most probable in the past is most probable on the immediate occasion. (...) In other words, what we see is apparently a function of some sort of weighted average of our past experiences. It seems that we relate to a stimulus pattern a complex, probability-like integration of our past experience with such patterns. (...) It follows from this that the resulting perceptions are not absolute revelations of “what is out there” but are in the nature of probabilities or predictions based on past experience. (Kilpatrick, 1961, pp. 46–47).

If form psychology follows the mere recognition of the configuration of stimuli at reception, then transactional psychology emphasizes the process of interaction with the dispositions of the

perceiver, that is, the cognitive experience carried out in the process. In other words, it observes the interactive relationship between the stimuli and the recipient.

“In general, the interaction between subject and object is not brought about by a form of organisation which is independent of development and which has no genesis. On the contrary, the interaction is due to an endless construction of new schemes by the subject during his development, schemes to which he assimilates the perceived objects and in which there are no definable boundaries between the properties of the assimilated object and the structures of the assimilating subject. As we have already said in the Introduction, it is necessary to oppose geneticism without the structure of empiricism and the structuralism without the genesis of Gestalt phenomenology with genetic structuralism in which each structure is the product of the genesis and each genesis merely the passage from a less evolved structure to a more complex one.” (Piaget, 1961, p. 364)

This applies not only to the general level of perception of phenomenal reality but also to the perception and interpretation of a work of art. After all – and we have emphasized this several times – the perception of reality and the

⁷ Eco, U.: Opera Aperta, The Open Work, Harvard University Press, Cambridge, Massachusetts, 1989

work of art are communicating vessels. This is understood, of course, from the viewpoint of openness and thus of the range of probabilities in the perception of reality and the artwork.

The basic starting point is probably a structure with dynamically related elements and their grouping into configurations, or, in other words, into figures as cut-outs from the visual field (Francastel, 1984). In order for these dynamic relationships to prevail in the perception of an artwork and not only in the process of its genesis, it is necessary to involve time in the process of perception. However, it should not be astronomical time as a time unit defined by the perception of an artwork, but structured time, with which we are familiar in the perception of a musical work.

Although there is a hierarchy of forms in the picture and we can observe the relationships between them in the determination of the antecedent and the consequence, it would probably not be appropriate to “graft” the process of musical structural time onto the dynamic relationships within the structure of an artwork. Even the articulation of the structured time of image perception must necessarily draw on the controlled process of communication, proceeding from parts to the whole, e.g. from the form and means of expression as its grammar through spatial relations to the composition and overall structure of the work. And for cultivating visu-

al – but also interdisciplinary – literacy based on the process of communication, the perceptual process proceeding from pre-understanding to understanding is important.

These examples of articulation of the structured time of the perception of an artwork and communication with it bring us back to hermeneutics, whose indisputable contribution to interdisciplinary literacy has already been mentioned in connection with the Constance School. The above-described process moving from parts to the whole is the essence of the key concept of Gadamer’s philosophical hermeneutics, a “hermeneutic circle”. This term “refers to a model of understanding which is based on the thematization of the relationship of the part to the whole and has a circular form” (Sládek, 2018, p. 274). Other hermeneutic terms, “pre-understanding” and “understanding”, are closely related to the terms “pre-literacy” and “literacy”, not only in their static understanding as a state but also in the dynamic process starting from subjective communication with an artwork and leading to its intersubjective interpretation as a statement of its time.

The relationship between the subjective and intersubjective levels of communication is based on an active approach to a work of art, the essence of which is to ask troubling questions and look for answers (Bláha & Řihová 2019, pp. 66–67) And it is the Gadamer

hermeneutics of the application that is based on the dialectical relationship of a question and an answer as the essence of understanding.

“In this way, the hermeneutics of application belongs, as Gadamer indicates, to the dialectic of question and answer. To understand something means to have related it to ourselves in such a way that we discover in it an answer to our own questions – but ‘our own’ in a way that these questions, too, are assimilated into a tradition and metamorphosed by it. Every act of understanding, even self-understanding, is motivated, stimulated by questions that determine in advance the sightlines of understanding. A text is given voice only because of the questions that are put to it today. There is no interpretation, no understanding, that does not answer specific questions that prescribe a specific orientation. Unmotivated questions of the kind that positivism desiderates would pertain to no one and consequently be of no cognitive interest. The point is not to exclude the anticipations of meaning implicit in our questions but to foreground them so that the texts that we are trying to understand can answer them all the more clearly. Thus, successful understanding can be described as the effective-historical concretion of the dialectic of question and answer. It is precisely here that we can see the philosophical import of historically effected consciousness.” (Grondin, 2011, p. 148)

Grondin’s detailed interpretation of the dialectic of question and answer is completed by a brief description from Gadamer: “The dialectic of question and answer... now permits us to state more exactly what kind of consciousness historically effected consciousness is. For the dialectic of question and answer that we demonstrated makes understanding appear to be a reciprocal relationship of the same kind as conversation.” (Grondin, 2011, p. 148)

The current analysis of perceptive time with the emphasis on the dialectical relationship of the antecedent and the consequence as an active element of interdisciplinary literacy was universally valid in time. At the same time, however, it can be employed in a closer connection with a specific problem that applies to a certain developmental stage or tendency only, such as the organic principle of the order of abstract expressionism in painting and free atonality in music at the turn of the first and second decades of the 20th century, introduced first by Wassily Kandinsky and Arnold Schönberg, respectively. What unites Kandinsky’s abstract expressionistic paintings and Schönberg’s compositions of free atonality most strongly is the organic principle of internal order. This means that an abstract image or an atonal composition “grows” like a living organism; they are thus formed in the process of a creative act. The absence of a compositional scheme or a musical

form is replaced by Kandinsky's artistic feeling or Schönberg's musical feeling, to which Adorno refers as the "musical ear". The undeniable advantage of music is that it unfolds over time, which is reflected not only in the spontaneous formation of the musical form and its relationship to other musical forms but especially in the organic flow of musical time. Schönberg aptly formulated this spontaneity of organic musical time as "the instinctual life of sounds in free atonality". Maximum spontaneity is thus associated with simultaneous intellectual control; that is, in the words of Theodor Adorno, "the ear listens live to the material of what has become of it" (Adorno, 1969, p. 34).

This constant control of the "musical ear" is a means of defence against anarchy, chaos, both for the composer and for the musically literate listener. The listeners can also use a score for exact control, in which they can verify the organic spontaneity of musically structural time. A similar "organic life of forms" is promoted in Kandinsky's abstract expressionistic paintings. However, their viewer does not have the same option as the listener of Schönberg's atonal compositions; there is no control mechanism appropriate to the "listening ear" and the musical score. The common feature of abstract expressionism and free atonality is that the organic principle of the internal order is formed in the process

of the creative act. However, the image does not capture the process, but its result. Therefore, the organic principle of the composition can only be sensed, not seen, which can lead to short-circuiting moments in communication. On the other hand, music takes place over time. Therefore, the process of the creative act is essentially identical to the resulting composition. It logically follows that we not only sense but also hear the spontaneity of the internal order. Just as the saying "you will not step into the same river twice" applies, so does its modified version "you will not step into the same atonal composition twice". It flows like a river – without stopping. The indisputable benefit of interdisciplinary literacy is especially evident in this specific example.

Form and content

In the list of reasons why the applied information theory is suitable for the interpretation of tectonic aspects of music and fine arts in the previous section of this study, three of the arguments that were given are related to the relationship between form and content. Therefore, at the beginning of this section, we will point them out as a point of departure.

1. Musical meaning is qualitatively different from the meaning in fine arts or literature, mainly because of being

a markedly specific phenomenon, to which it is difficult to apply interpretive models of these fields.

3. Applied information theory thoroughly maps the relationship between redundancy and randomization as decisive factors in the relationship between information and entropy – and this is where gestaltic and structural applications differ considerably.
5. It affects not only the genesis of meaning but also the process of its formation and the role of deviations and their variants as increasing the amount of information included. The structuring of this process is mainly related to the inherent meaning and its relation to information, associated with the stage of development of the inherent meaning as an articulation of dynamic aspects of the tectonic process.

The fundamental difference in the relationship between form and content consists mainly of the qualitative difference in the observed art types phenomena. The difference between fine arts and music in relation to Being was perfectly formulated by the French philosopher and aesthetician Maurice Merleau-Ponty:

“The visible world and the world of my motor projects are both total parts of the same Being. This extraordinary overlapping, which we never give enough thought to, forbids us to conceive of

vision as an operation of thought that would set up before the mind a picture or a representation of the world, a world of immanence and ideality. Immersed in the visible by his body, itself visible, the seer does not appropriate what he sees; he merely approaches it by looking, he opens onto the world.” (Merleau-Ponty, 1993, p. 124).

“Music, at the other extreme, is too far on the hither side of the world and the designatable to depict anything but certain schemata of Being – its ebb and flow, its growth, its upheavals, its turbulence.” (Merleau-Ponty, 1993, p. 123). Only a fool might think it’s not enough. The specificity of meaning in music is closely related – as has been emphasized several times – to its phenomenon. It is certainly no coincidence that music has become a catalyst for the emancipation of a work of art. Not only in fine arts but also literature at the turn of the 19th and 20th centuries, since it was through music that artists got rid of their dependence not only on the specific (or “mimetic” in the visual arts, respectively) appearance of phenomenal reality in terms of form but also in terms of content and narrative. This difference, as well as certain common features, is very perceptively covered by information theory.

Concerning typology, applied information theory distinguishes two types of meaning: referential and inherent. The referential meaning refers to the physi-

cal and metaphysical reality, that is, to the world of phenomena, but also to the world of ideas, feelings, and visions. Therefore, the referential meaning relates primarily to the mimetic artistic expression and, to a certain extent, to programme music. Thus, it is connected with fine arts or literature. This is also indicated by the use of structuralist (semiotic) terminology, especially by terms such as “denoting” and “denoted”, etc.

The inherent meaning is far more important, even crucial, for the tectonic parameters of musical meaning. This inherent meaning is based on the already-mentioned relationship of the antecedent and the consequence, i.e. on the interactive relationship of events – a preceding event evokes expectations of the event to come. An important term related to both the genesis and especially the further course of the process of the formation of meaning is deviation. Without deviation, the meaning is neutral and the information load is thus minimal. The role of deviation is to disrupt the expected (assumed) course of events, the ground plan of which is determined by the scheme of the musical form. The possibilities of applying deviation are thoroughly developed in information theory, the decisive factor being the position of deviation in the relationship of the preceding and the upcoming event.

An important role in the “strategy” of the process of structuring the stream

of music is played by the relationship between the inherent meaning and information. This relationship is established by the offer of possible options in the given situation. With an emphasis on redundancy as a predictable regularity and therefore a limited choice of options, the level of information is minimal, which leads to low entropy. The exact opposite is the absence of redundancy, and thus a high degree of randomization as a measure of uncertainty. On the one hand, randomization is the source of the maximum load of information, but on the other hand, it is associated with the maximum degree of entropy, which leads to cultural noise, i.e. it interferes in the process of communication between the work of art and the consumer. The limit degree of randomization occurs in modern music, especially when a fundamental change in system occurs, for example, in the transition from tonal to atonal music.

The expectations, which serve as a ground for musical meaning, are distinguished into latent and active. Latent expectations are associated with a system of norms and conventions and are therefore determined by probabilistic relationships and modes of mental behaviour. On the contrary, active expectations arise when standards are violated. However, it is clearly corrected by assimilation systems. Eco refers to cultural models as a “system of preferences and conventions” which are a source of pro-

tection against reckless change. What Eco calls the “system of organic functioning” is actually the dynamic interaction of assimilation schemes and their disruption as a process of corrected changes. In tonal music, the polarity of tonality thus functions as the limit within which the process of changes in assimilation schemes takes place in a controlled manner.

The positive contribution to information theory for tectonic analysis of a musical composition unfolding in structured time is the stages of development of the inherent meaning influencing the process – not only in terms of the relationship between the antecedent and the consequence that we have observed so far but also in terms of qualitative changes in relationships. The impulse of expectation is the basic element upon which hypothetical significance is built. As its name suggests, the nature of the antecedent as the initial event puts forward the hypothesis of the form of the consequence as the following event. The less the consequence corresponds to the hypothetical idea, the more information (but also entropy) it brings. The degree of probability of the expected consequence is corrected by the assimilation systems of the respective cultural model.

The following obvious meaning is associated with the feedback re-evaluating the antecedent and its relation to the consequence. It therefore has

a retrospective character, but at the same time establishes a higher quality of the relationship and thus readiness for future expectations. The most relationally challenging are the determined meanings, which are formed after the word has faded as a timeless memory. They result from the relationship of the form and content, gradual clarification of relational relationships, on which a more detailed process of relational bonds between hypothetical and evident meanings participates. And this process, evolving from the systemic uncertainty at the beginning of the musical composition to the gradual clarification of probabilistic relations, corresponds exactly to what we call a stochastic process.

The choice of probabilities in tonal music is greatly limited by assimilation systems and, in addition, flows in the opposite direction. In the beginning, there are strict “redundancy rules” of a specific musical form as a paradigmatic pattern. In the process of development, this pattern is disrupted by syntagmatic deviations in order to strengthen information and thus revive the interest of the audience. At the same time, however, it is essential to respect the structured process from the stimulus through the crisis to the expectations associated with satisfaction and the re-establishment of order.

We believe that our foregoing analysis of the tectonic relationships of a musical work has demonstrated the indisputable

advantages of applied information theory to other interpretive models.

In the analysis of the relationship between form and content, increased attention was paid to music for the specificity of the processes of statement formation based not only on the relationship between the preceding and the subsequent events but also on the important role of deviation and different types of meanings. Even though these interactive processes also occur in the active communication with the work of art, they do so in a different preference of individual types of meanings and in connection with narrative art as a second voice in the counterpoint with the iconographic content. It was this second voice, in which the form bears the message, that was undervalued by Erwin Panofsky when he isolated the meaning as a fixed voice detached from the form as a second voice associated with the form.

Whilst in music – especially in connection with its abstract phenomenon – the inherent meaning significantly predominates as a dynamic interaction of two different events, in figurative artistic expression, on the contrary, what is dominant is the referential meaning in direct relation to the phenomenal reality. However, this does not rule out a certain degree of proportion of inherent meaning based on the interactive relationship of interrelated “visual events”.

The degree of employment of the inhe-

rent meaning increases with the advent of modern art and is promoted both in figurative art (cubism) and, especially, in the transition from figurative to non-figurative painting. Primarily here, in his abstract expressionistic paintings, Kandinsky promotes organic bonds between open shapes in their relation to the inner space of the painting. And it is precisely in the communication with these paintings by Kandinsky that musical literacy plays a very important role – namely the perceptual experience with Schönberg’s atonal music – as a catalyst accelerating and improving perception by intuitively revealing the interactive variability of the relationships among open shapes. The close “family” relationships between music and painting are strengthened here as a means of developing interdisciplinary literacy. The gradual change in the relationship between the referential and inherent meaning brings about a change in the role of deviation as a disruption of the expected relationship between the individual elements of the image. The change occurs especially in an expressive artistic expression, manifested not only in deformations of shape or extreme contrasts between colours and discrepancies of spatial relationships in expressive figurative art but also, to a much greater extent, in the organic spontaneity of abstract expressionism, as was demonstrated in the preceding tectonic analysis of Wassily Kandinsky’s paintings.

The essence of the above-mentioned process of qualitative transformation of the relationship between form and content in modern painting is the implantation of elements of musical thinking into the specifics of artistic thinking. One of the prerequisites is the gradual elimination of iconological content, the other being the interactive process of pushing back the boundaries between art forms and their gradual intertwining. Concerning the focus of this study, we are interested in the process of the gradual interweaving of artistic and musical thinking. The genesis of this process is related to what has been called the musical phase of painting, whose prophets and pioneers were Paul Gauguin and, to some extent, also Georges Seurat. Underestimating the importance of this developmental vicissitude is caused by the distorted understanding of the role of music as a catalyst for the emancipation of image at the turn of the 19th and 20th centuries, as was demonstrated by Paul Gauguin's Pont Aven and Tahiti paintings. Nevertheless, Gauguin himself expressed this essence perfectly in his essays as "music of the image" or "magical chords of colours". Moreover, he emphasizes:

"By the combination of lines and colours, under the pretext of some motif taken from nature, I create symphonies and harmonies that represent nothing absolutely real in the ordinary sense of the word, nothing expressing an idea

directly, but are intended to give rise to thoughts as music does, without the contribution of specific thoughts or images, simply by the mysterious affinity of our brain with the mentioned combination of lines and colours." Gauguin was the first to understand the essence of the connection between painting and music, and he also managed to use it to liberate the means of expression of painting from their direct dependence on reality. He realised that painting - similarly to music - can only be expressed by its own means - i.e. the "combination of lines and colours". Therefore, it is not about external similarities, but about the very essence of the relationship. And the relationship is based on colour as a clearly dominant means of expression in Gauguin's painting. He works with colours in a similar way to a composer with chords of tones while creating a harmonic component of his musical work.

Topping off the "musical phase of painting" are Wassily Kandinsky's abstract paintings from the years 1910-1914. The role of music as a catalyst that accelerated the transition from figurative expressionism to non-figurative abstract painting is confirmed by Kandinsky's words: "The deep relationship between the arts, and especially between music and painting, is the foundation (...) of the road by which painting will, according to its own possibilities, make art an abstraction of thought and arrive finally at

purely artistic composition.” (Kandinsky, 1977, p. 27)

Whilst Gauguin considered the theme “just a pretext for a combination of lines and colours”, Kandinsky managed to get rid of any connection to the material form of reality. In his paintings of the first half of the 1920s, lines and colours become autonomous values, become themselves, and thus take on the role that melodies and harmonies – and other means of expression – play in music.

František Kupka enriches the musical qualities of the painterly means of expression with another of the key tectonic principles of music. The gradual process of crystallization of his paintings from a series of studies to the final work is built on the principle of musical variations – that is, on colour, shape, or linear or rhythmic variations of the initial idea. What differs fundamentally from musical variations is the starting point. The starting point of musical variations is a clearly formed theme as a solid basis for the following variations, which change the theme harmonically melodically, rhythmically, dynamically, etc, whilst the starting point of Kupka’s variations is the basic idea and only the final product of the variation process is the final image.

The richness and variability of the musical aspects of Kandinsky’s and Kupka’s abstract paintings show the deeper roots of this qualitative transformation. It is not just music as a catalyst for the transition from figurative painting

to non-figurative or abstract art, as this was just an impulse that “started” the qualitative process of transformations that resulted in a fundamental change of artistic thinking. By depriving the abstract painting of a direct link to the material reality, the original dominant role of referential meaning is translated into inherent meaning, which is based on the dynamic interaction of the antecedent and consequence and the associated process of deviation as the principle of the organic pulse of an image. This pulse is the core of the spontaneous structural time, not only of the creative process of its “materialization” but also of the active communication in the course of its perception. We consider this to be a fundamental argument justifying our belief that someone who lacks musical thinking cannot fully understand and, above all, intensely experience not only the abstract paintings of Kandinsky and Kupka but also other representatives of abstract expressionism of the generation emerging during World War II, from Pollock to Rothko.

But that is not all! The integration of different ways of thinking of different disciplines leads to interdisciplinary, i.e. more complex literacy.

A fundamental change that occurs in the understanding of meaning as the message of an artwork is closely related to the transformation of the relationship between form and content in abstract expressionism, since the meaning is

not given in advance and the role of an artwork is neither to interpret this pre-determined meaning, nor to transform it artistically. The purpose of an artwork is created in the process of the creative act, as well as its internal order. In other words, the iconological content and its visual representation are cancelled. The same also applies to the meaning as a message of Arnold Schönberg's atonal music. A more detailed analysis of this problem is offered by Theodor Adorno:

“No metaphysical meaning is predetermined, and none may be imitated by art. (...) The meaning of a work of art is something that must be created, not displayed; is what it is only because it is created (...) Art as a spiritual fact is neither the last bastion of faded spiritual history nor a breeding ground for ad hoc artistic metaphysics. What Kandinsky called the spiritual in art is not an extension, but - paradoxically - a state of affairs. What is unreal about it is its own reality. This evolved in Schönberg's as well as Kandinsky's works from something taking place secretly to an obvious fact.” (Adorno 1969, p. 33)

Kandinsky describes this change in the understanding of meaning as the statement of a work of art as “the inner wording of things” or “inner view” and Schönberg as “inner necessity” or “inner urge”.

Conclusion

Nowadays, more than ever, we live in a multimedia environment as a natural synthesis of various forms of communication. Thus, a similar process in art is an equally natural consequence. It is seen as the completion of the process of gradual disruption and blurring of boundaries between individual art forms up to their synthetic fusion in the multimedia expression of contemporary art. However, the indivisible unity of interconnected art forms as a total work of art (*Gesamtkunstwerk*) has deep roots that in European art go back to the early Middle Ages. They are related mainly to Christian temples, where the unity of word, image, and sound was strictly applied, especially in the interior of churches. Suffice it to compare the monumental morphology of the interior of a fifth-century basilica with static monumental mosaics of additively arranged figures of saints. This *ostinato* (repetitive) rhythm of their arrangement is inextricably linked to liturgical one-voice singing. In this phase of the Christian *Gesamtkunstwerk*, the key role is played by the word, which is superior to both the artistic component aimed at providing elementary information about the stories of the Old and New Testaments and the declamatory essence of liturgical recitative and other forms of a syllabic type of melody.

The abstract geometric order of

Gothic cathedrals, evoking the impression of unrestrained fantasy, a captivating attack of sculpture transforming the exterior of the church into a stone bible, draws attention to the artistic component of interdisciplinary relations. It directly demands an appropriate transformation of the musical forms of horizontal counterpoint with melodically, harmonically, and rhythmically complex interwoven voices. The rational order of the Renaissance church is dominated by the compositional balance of spatial units intensified by the mathematical principle of linear perspective. Moreover, the artistic purity of the material shell of the building corresponds to a well-elaborated, technically perfectly

conducted vocal guidance in Renaissance vocal polyphony. The dominant role is undoubtedly played by architecture. The completion of the Christian Gesamtkunstwerk is associated with radical Baroque, in which art and music joined forces in a total symbiosis of visual and sonic expressive urgency and carried out an attack on the senses and feelings of the faithful. The boundless possibilities of advanced audio-visual technology allow us to make virtual returns to the past, including the interdisciplinary experiences outlined above. However, despite all the technical conveniences, they cannot be fulfilled without advanced interdisciplinary literacy.

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