

Bowsticks and Elemental Meaning

By Greg Lauzon

The interaction between musical expression and emotional responses has been a mystery for scientists and philosophers. Music can incite the whole range of human emotions. I propose that Lonergan's category of elemental meaning can help understand the process of identifying emotional responses.

As an example of elemental meaning Lonergan often referred to the smile. 'There are smiles of recognition, of welcome, of friendliness, of friendship, of love, of joy, of delight, of contentment, of satisfaction, of amusement, of refusal, of contempt. Smiles may be ironic, sardonic, enigmatic, glad or sad, fresh or weary, eager or resigned.'¹

This meaning is elemental, Lonergan says, because it is pre-conceptual in the sense that there are no words spoken yet the smile has a meaning that is recognized on an elemental level. The question remains however, to what extent is elemental meaning culturally influenced and to what extent is it innate in a world mediated by meaning? With regard to musical expression and emotion, the answer to this question is complex.

I have attempted to bring emotional expression into percussion in the past while writing *Lamenting at the Abattoir: Meditations Through Rhythm*, which I presented at 'Lonergan on the Edge.' in Milwaukee 2009.² I attempted to mimic vocal sounds of animals with the use of a violin bow on spring. I provided an explanation for the sounds that I had produced for the demonstration. The connotations were clear. However, a context-free presentation of the same sounds would have had a more general set of connotations produced in audience members. Semioticians refer to this general set of connotations as a semantic field. This would fall under Lonergan's category of constitutive meaning, because the semantic field of musical sounds changes throughout time and culture.³ While a piece of non-lyrical music may evoke similar affects among listeners on the level of elemental meaning, each listener may describe different associations.

The Bowstick

The components of emotional expression in music are timbre, pitch, volume and rhythm.⁴ Percussive expression uses these parameters much differently than traditional bowed instruments (Fig. 1). The bowstick is a hybrid between the violin bow and the drumstick. Unlike a violin bow it has the durability required to enable the player to combine the techniques used for string instruments with the techniques used for percussion. A stick-like bow opens more possibilities for different sounds when played

¹ Bernard Lonergan *Method in Theology*, (Toronto: University of Toronto Press, 1999) 60.

² Greg Lauzon, "Lamenting at the Abattoir: Meditations through Rhythm." *Lonergan on the Edge 2009*. Milwaukee. WI, Lonergan Resource. 2011. Web. 24 June 2011. http://www.lonerganresource.com/pdf/contributors/Lauzon-Lamenting_at_the_Abattoir.pdf

³ See Bernard Lonergan *Method in Theology* 78-79 also see Phillip Tagg, Philip Tagg's Home Page, 1999, Introductory Notes on the Semiotics of Music, <http://www.tagg.org/xpdfs/semiotug.pdf>, 7-8

⁴ Dan Wu, Chaoyi Li, Yu Yin, Changzheng Zhou, and Dezhong Yao, *Music Composition from the Brain Signal: Representing the Mental State by Music*, Computational Intelligence and Neurosciences [CIN]. Vol. 2010, (Cuyahoga Falls OH: Hindawi Publishing Corporation, 2010) 2

on a springs. Springs are more suitable than strings for percussion because of their durability and slightly atonal sound. They are tonally ambiguous enough to be used either for percussion or melody. The bow and the drumstick were destined to combine into one instrument. This is an example of emergent probability because the elongation of sound is something that is lacking in percussion save for cymbal crashes, unless some such development occurs. The drumstick is the beneficiary and the violin bow is the benefactor of this union.

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Fig. 1 Bowstick and Spring Instrument.

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My main area of interest is how the bowstick can be applied to percussion through the expressive elongation of rhythmic strokes. I found the work of neurophysiologist, Manfred Clynes to be of great importance for understanding the dynamics of this pursuit. Clynes discovered a way to graph emotional responses through measurement of touch. This is referred to as the study of Sentic. The process involved the use of a measurement device invented by Clynes called a sentograph. Subjects were asked to express a particular emotion such as anger or love repeatedly at command by expressively touching a sensor with their finger. The sensor of the sentograph would measure the pressure and duration of each touch. These repeated measurements of a particular emotion were then calculated to form an average. The graphic shape of this average is referred to as an essentic form⁵ (Fig. 2).

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I applied this to what I was trying to do with the bowstick. The tactile response of rubbing and striking the bowstick against the springs felt differently than the finger-pressing method used for expressing and measuring essentic forms. It took some practice to transpose the gestures used in the finger-pressing method of measuring sentic cycles into affective bowstick gestures. I followed the rhythm of the prompt signals of the sentic cycles in an exercise playing on a CD created by Clynes. These prompts were a series of clicks following an announcement of which emotion they pertained to. Each emotion required a different time interval between clicks. The listener would then express the emotion through touch. The emotions or sentic states covered in this exercise were, no emotion, anger, hate, grief, love, sex, joy and reverence. The result was less of a percussive sound and more of a rough string instrument sound. The texture of these rougher sounds seemed to be more compatible with emotions like anger and grief but perhaps not so much with joy. This would suggest that the texture of the sound

^{5A}Manfred Clynes, *Sentic: The Touch of Emotion* (Garden City: Anchor Press/Doubleday, 1977) 26-41

influences the listener's receptiveness to the essentic form. Those who have an ear for more abrasive music may be better able to identify the essentic form of joy in the sound.

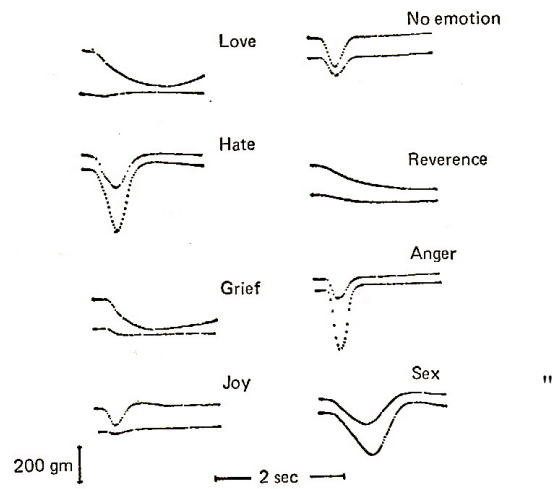
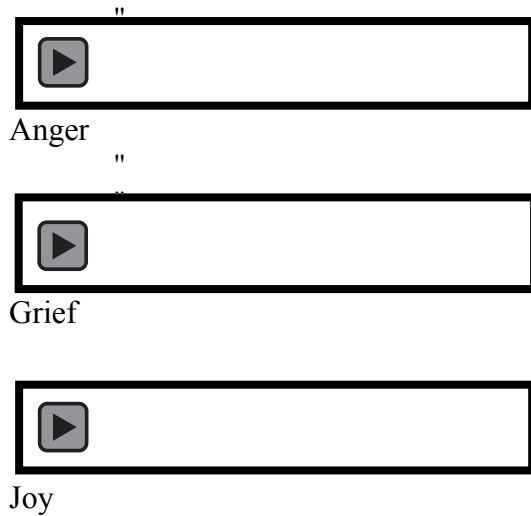


Fig. 2 Clynes's Chart of Essentic Forms.

Elemental Meaning

There are correlations between Clynes's exploration into Sentic and Lonergan's elemental meaning. They are both pre-conceptual. There is also a physiological connection between elemental meaning found in Manfred Clynes's essentic forms expressed through sound and the semiotics of words. This is not to imply that these two systems are interchangeable.⁶ Music and words are processed differently in the brain although they do share some of the same neural mechanisms for recognizing changes in sound.⁷ It would seem instead that sound as elemental meaning and language as conceptual interact with one another – Lonergan's upper blade and lower blade. The upper blade is the physiologically based elemental meaning in the essentic form that is independent of culture. The lower blade is the constitutive meaning of culture through which the affects of the essentic form are interpreted.⁸ I would like to propose that this is one possible answer to the question regarding to what extent elemental meaning is culturally interpreted in a world mediated by meaning.

I discovered this relationship accidentally when I attempted to apply Sondra Pearl's focusing for creative writing technique to create music when writing *Lamenting at the Abattoir: Meditations through Rhythm*.⁹ This technique was based on a type of meditation created by Eugene Gendlin called focusing.¹⁰ This is a method for getting in touch with emotions that are stored as tension in the body. By focusing on these subtle bodily sensations or felt sense as it is called, one can experience a release of tension referred to as a shift. This shift is accompanied by insights into the cause of that tension.

^{6A}Phillip Tagg, Philip Tagg's Home Page, 1999, Introductory Notes on the Semiotics of Music, <http://www.tagg.org/xpdfs/semiotug.pdf>, 7-8

^{7A}Oliver Sax, *Musicophilia*, (Toronto: Alfred A. Knopf, 2007) 216

^{8A}Bernard Lonergan, *Insight*, (Toronto: University of Toronto Press, 1992) 601-1

^{9A}Sondra Pearl, *Felt Sense: Writing with the Body* (Portsmouth: Boynton/Cook) 2004 also see Lauzon, "Lamenting at the Abattoir: Meditations through Rhythm." 3, 9

^{10A}Eugene T. Gendlin, *Focusing* (New York: Bantam Books, 1981). 3-9

I found that trying to focus for music is significantly different than focusing for written language. Unlike written and spoken language there is no conventionally understood symbol of what a given musical sound represents. The interpretation of music is highly subjective and personal. This is why the two systems of music and language are not interchangeable.

Inner Pulse and Rhythm

Clynes found that composers and performers of music each had their own unique inner pulse. The pulse form is determined by the alternation between active and resting phases. The essentic form is generated simultaneously with the pulse.¹¹

The pulse forms generated in the sentics cycle exercise do not lend themselves as easily to creative rhythmic expression and perhaps are not meant to. In order to bring out the rhythmic potential of the essentic forms of the pulse through the bowstick I incorporated it into a novel drum kit design (Fig. 3). This kit was composed of a spring for the bowstick played with the right hand, a steel pan drum encased in sheet metal played with the left hand, and an oil drum for the kick drum. I choose this combination of drums for their compatibility of metallic sounds.



Rhythm Played on Bowed Spring Pan Kit.



Fig. 3 Bowed Spring Pan Kit

Music and Meaning

Generic phrases and motifs in music emerge through intersubjective exchange in the form of gesture from the self and interpretative response from the other as audience.¹² The use of gesture in meaning is also found in the study of Sentics. They can be in any number of forms such as sound, movement or shape. Gesture can produce emotion and emotion can produce gesture. They are interconnected through essentic form.¹³

¹¹ See Clynes, *Sentics: The Touch of Emotion* 24-25, 76-79

¹² See Bernard Lonergan, *Method in Theology* 356-357

¹³ See Clynes, *Sentics: The Touch of Emotion* 24-25

The question that comes to mind is: when is the interpretation of musical gestures elemental and when is it culturally influenced? In a world mediated by meaning the expression of sounds is accompanied by associations. These associations vary between cultures and time periods.¹⁴ Clynes's discovery of essentic forms, however, provides physiologically based examples of elemental meanings that are universal and go beyond time and culture. A study showed that infants responded to the interval of a perfect fifth more so than to dissonant intervals.¹⁵ This suggests that there is a bio-acoustic basis for how humans respond to sounds.

A study was conducted at, CNRS - Laboratoire de M'ecanique et d'Acoustique, in France that involved mapping out semiotic labels for various sounds.¹⁶ Subjects were asked to give descriptions of images or feelings they had when listening to a variety of sounds. What they found was that a large percentage of these images involved motion. These images were organized into basic general categories; rotate, fall down, approach, pass by, go away, and go up.

I attempted to apply this principle to the bowstick. I had no sound examples from the original experiment from France to use as a reference so I used the motion descriptions. Using the bowstick on spring I experimented with various sounds while imagining the various motions. There were limitations to the kinds of sounds that could be created. However, I managed to create a rhythm that seemed to fit the motion labeled, rotate.



Motion Labeled Rotate Played on Bowed Spring Pan Kit

Conclusion

The bowstick is an example of how new musical tools can bring new affects into music. In the case of the bowstick this can happen in the form of new sounds and playing techniques thus forwarding the evolution of music. Clynes's exploration into essentic forms provides a framework for how these affects are manifested through our physiology.

Clynes's work also validates Lonergan's category of elemental meaning. We may not know what someone who is screaming in another language is saying but we are certain that they are upset. Gendlin's focusing technique exemplifies the distinction between elemental meaning and conceptual meaning as well as how the transition from one to the other can happen.

The study from France on interpretation of sounds provides an example of how Lonergan's category of constitutive meaning evolves into common meaning. The general

¹⁴ See Tagg, Introductory Notes on the Semiotics of Music, 7-10

¹⁵ E. Glenn Schellenberg and Sandra E. Trehub, *Natural Musical Intervals: Evidence from Infant Listeners*, (Psychological Science, Vol. 7, No. 5, Sep., 1996), 273

¹⁶ Merer, A. Ystad, S. Kronland-Martine, R. Aramaki, M. Semiotics of Sounds Evoking Motions, *Lecture Notes in Computer Science*, (Lecture Notes in Computer Science, vol. 4969, 2008) 139-158

categories from that study provided a framework of sound images based on movement. A recurring theme found Clynes's work on essential forms as a link between these other studies.