

Musical Emotions and the Metaphorical Mind: Final Report

17-111-S. Musical Emotions and the Metaphorical Mind: What the Neuroscience of Music Teaches Us About Emotions. CHF 48'000.

18-108-S. Musical Emotions and the Metaphorical Mind: Practical Implications of the Neuroscience and Philosophy of Osmosis. CHF 48'000.

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Summary

This interdisciplinary project investigates theoretical and practical issues concerning emotional contagion by music. Music can infect us. For instance, listeners might feel sad because they perceive some music as sad. Call this “osmosis.” Osmosis is central to musical experience and the practical uses of music for well-being and therapy. It also addresses the fundamental issue of emotion’s nature. Indeed, many believe that osmosis teaches us that the main view of emotion as cognitions of values is wrong; osmosis is standardly conceived as a non-cognitive phenomenon involving mirror neurons. What is osmosis? What does it teach us about emotion? Which role does it play for well-being?

Despite the vast philosophical, neuroscientific, and psychological literature on this topic, little attention has been paid to integrating the philosophical and the empirical approaches. This project aims at bridging this gap by establishing a mutual dialogue between philosophy and the empirical sciences. The main hypothesis appeals to metaphor cognition: osmosis consists of experiencing music as a *metaphor for emotions and values*. For instance, feeling sad in listening to sad music is experiencing the music as a metaphor for sadness and unfortunate things. In a sense, music “sounds like” emotions and values. I have defended this hypothesis with the help of philosophical tools and empirical studies on metaphor, emotion, music, and synesthesia, so as to illuminate three important issues pertaining to the nature of emotion, our paradoxical love for sad music, and the surprisingly intact ability for osmosis in autism. This project has broad ramifications in the interdisciplinary study of emotion, perception, metaphor, and aesthetics. It was time that philosophers used the insights of other disciplines to address the theoretical and real-life issues of osmosis.

I. Main Achievements

- The **scientific goals** have been achieved (§II): During the first year, I have articulated in detail my **theory** of osmosis. During the second year, I have developed it to account for the **practical** implications of osmosis with regard to emotion regulation and emotional disorder. The main goal of the project – establishing an **interdisciplinary** dialogue between philosophy and neuroscience around the theme of osmosis – has been met.
- I have published several **articles** on the topic of this project and on related projects in philosophical and interdisciplinary venues, for academic audiences and the general public (§III).
- I have presented my work at philosophical and interdisciplinary audiences in international **conferences** (§IV). I have **collaborated** with scholars from various disciplines at the *Center for Science and Society* (Columbia University) and with scholars in philosophy, neuroscience, and cognitive science in New York, Europe, and Switzerland.
- I have been **awarded** a 6-year fellowship at the University of Lisbon (Portuguese Foundation for Science and Technology) and a one-month fellowship at the *Center for Philosophical Psychology* of the University of Antwerp. I have also been offered a teaching position at the New York Film Academy (§V).

II. Detailed Scientific Results

II.1. Theory: Osmosis, Emotion, and Metaphor Experience

In the first year, I have addressed the main theoretical issue of this project. **What is osmosis? What does it teach us about emotion?** My article “Musical Emotion and the Metaphorical Mind: A New Cognitivist Account” clarifies the issue, examines the main accounts, and offers a new theory.

The article starts with **clarifying the issue** by integrating recent developments in emotion theory. Many think that osmosis teaches us that the main view of emotion (cognitivism) is false. According to cognitivism, emotions fundamentally are cognitions of values. For instance, feeling sad is appraising an event as unfortunate. However, this conception does not fare well with osmosis. Feeling sad in response to sad music is not experiencing the music as unfortunate or negative. Scholars have thus concluded that cognitivism fails to capture osmosis and is flawed. In neuroscience, osmosis is standardly conceived as a case of non-cognitive contagion involving mirror neurons firing. Does music invite us to renounce cognitivism?

I have examined the main **philosophical accounts** of osmosis and criticized them with the help of the empirical literature, which has not been done. Philosophers have attempted to rescue cognitivism in various ways (the appeal to moods, to being moved, or to evaluations via imaginings). However, these proposals are rarely examined in light of the empirical evidence, and in fact collide with them. The challenge thus stands.

Conversely, I have put into perspective the main **neuroscientific picture** with the help of emotion theory. The hypothesis that osmosis involves mirror neurons has not been tested, and important questions remain. For instance, autism involves a dysfunctional mirror neuron system. Yet, osmosis is intact in autism. Does this not contradict the hypothesis (§II.3)?

The article culminates with my proposal: osmosis consists of experiencing music **as a metaphor for emotions and values**. For instance, feeling sad in listening to sad music is experiencing the music as metaphor for sadness and unfortunate things. My main argument proceeds in three steps: (i) the theory of metaphor, (ii) empirical studies on the mapping between music and emotions, and (iii) the conceptual analysis of value. **(i) Metaphors** rely on the correspondence between two objects and exploit their salient features (the features that immediately come to mind when we think about these objects). The metaphor “Juliet is the sun” exploits the correspondence between Juliet and the sun, such as their splendor, importance, etc. **(ii)** Turning to music, empirical studies reveal that we perceive **music as similar to emotions**. For instance, sad music is similar to the affective prosody of sad speech (low pitch, slow tempo, etc.); sad music sounds like the way we talk when we are sad. This vindicates the idea that we can experience music as a metaphor for emotion. **(iii)** Now, this also suggests that we experience music as a metaphor *for values*. For a salient feature of **values** is that they elicit emotions: the value of the unfortunate is what tends to elicit sadness. Value concepts are inherently affective. It appears that experiencing music as a metaphor for emotion also amounts to experiencing it as a metaphor for values. This offers a new cognitivist theory of osmosis: osmosis involves values, albeit in a metaphorical manner.

The article concludes by rebutting **objections**. Do we really *perceive* metaphors? I clarify my proposal by making significant use of empirical studies on **synesthesia** or the so-called “mixing of the senses”, like perceiving high tones as bright. Synesthesia relies on associations between disparate domains (for instance, cross-modal associations), just like metaphors. I thus suggest that osmosis is a case of weak synesthesia, which helps to rebut objections.

II.2. Practical Implications I: Why Do We Love Sad Music?

In the second year, I have developed my theory by examining the practical implications of my proposal with regard to **emotion regulation** and emotional disorder, starting with the paradox of **sad music**. We usually avoid sad situations. Yet, we love sad music and listen to sad music especially when we are sad. Why? This paradox touches on key issues such as emotion regulation, sadness, and the value of music. I have examined the philosophical and empirical literature on this topic, and used my theory to offer an innovative solution to this problem.

In the article “Music and Tears in the Eyes. A Cognitive Science Approach to the Paradox of Sad Music”, I examine and criticize the main **philosophical solutions** to the paradox. Philosophical proposals – such as the idea that sad music does not elicit sadness or the idea that we seek it to savour sadness – collide with the empirical findings on the motivations for listening to sad music, which invites us to adopt an **integrative and interdisciplinary approach**.

Conversely, in the article “Sad Music and Emotion Regulation: Neuroscientific Approaches”, I have criticized the scattered picture of the motivations for seeking sad music that is common in the **empirical literature**. A promising theory should integrate the various motivations for seeking sad music into a unified whole. I have also criticized a recent and influential account that appeals to being moved. This lays the ground for my **proposal**: we seek sad music because we experience it as a metaphor for sadness and sad things, which helps us to reflect on sad things. This proposal offers a unified solution to the paradox. The article concludes with observations about emotion regulation and the epistemic value of metaphors.

II.3. Practical Implications II: Osmosis, Autism, and Synesthesia

This section of the project tackled practical implications of osmosis with regard to **affective disorder** by focusing on **autism**. Autism Spectrum Disorder (ASD) is characterized, *inter alia*, by impairments in recognizing emotions in facial expressions, speech, and movement. Yet, individuals with ASD are as good as neurotypical people in recognizing and feeling emotions in music. These findings are puzzling. How are we to explain them? Surprisingly, this topic has not been addressed in detail by philosophers.

The article “Musical Contagion and Autism: Insights from Synesthesia” starts by clarifying this puzzle, notably by contrasting the case of music with other art forms. I then examine a **philosophical dissolution** of the problem before criticizing the common explanation in the **empirical literature**, namely the idea that music is not a social stimulus. I show how this solution does not fare well with the importance of communication in osmosis. I then use my theory to solve the paradox. Synesthesia is significantly prevalent in ASD and both conditions have been explained by common mechanisms. If osmosis is a form of synesthesia, the intact ability for osmosis in ASD is no longer puzzling, which opens new avenues for therapy.

II.4. Impact

With this material and numerous interdisciplinary readings, I have the basis of a book proposal (*The Cognitive Science of Musical Emotions: The Case of Osmosis*). The results of this project have also been used to apply to various fellowships with success (§V).

This project offers a holistic approach to various theoretical and practical issues of osmosis that are currently disconnected. It fills an important gap by building a dialogue between philosophy and neuroscience. It advances our understanding of emotion, perception, metaphor, and negative art from a theoretical and practical standpoint.

I have also finalized various articles on related projects (§III).

III. Publications (forthcoming, accepted, or published during the fellowship)

The asterisk marks articles accessible to the general public.

- F. Lauria. (*accepted*). “Music and Tears in the Eyes. Sad Music, Well-Being, and Emotion Regulation”. In *Aesthetics of Emotions: Arts and Cognitive Science*. Edited by M. Mazzocut-Mis. London: Bloomsbury.
- F. Lauria, D. Preissmann & F. Clément. (*accepted*). “Self-Deception and the Selectivity Problem: An Affective Neuroscience Solution”. In *Self-Deception. What It Is and What It Is Worth*. Edited by A. Meylan.
- F. Lauria. (*accepted*). “Mort (Avancé)” [Death (Academic Audience)]. In *Encyclopédie Philosophique*. Ed. Kristanek, M.
- *F. Lauria. (*forthcoming*). “What is Desire?”. Oxford University Press Blog.
- *F. Lauria. (2019). “Mort (Grand Public)” [Death (General Public)]. In *Encyclopédie Philosophique*. Ed. Kristanek, M. URL: <http://encyclo-philos.fr/mort-gp/>
- F. Lauria & D. Preissmann (2018). “What Does Emotion Teach Us About Self-Deception? Affective Neuroscience In Support of Non-Intentionalism”. *The Ethics Forum/Les Ateliers de L’Ethique*, special issue “self-deception”, 13(2): 70-94.
- *F. Lauria. (2018). “Musique et identité: Des émois contagieux”. *Choisir – Revue Culturelle d’Information et de Réflexion*, 686.
- F. Lauria. (2018). “Le luxe”. In *Petit Traité des Valeurs*. Edited by J. Deonna & E. Tieffenbach. Paris: Ithaque.

IV. Dissemination of Knowledge/Networking

I have presented my work at the following conferences and events targeting philosophical and interdisciplinary audiences.

- 19.12.2019. New York Film Academy, New York.
- 05.09.2019. *European Society for Philosophy and Psychology*, University of Athens.
- 04.05.2019. *Workshop on Emotions*, City University New York, Graduate Center.
- 11.03.2019. *Mind, Brain, and Consciousness*, New York University.
- 04.09.2018. *Italian Society of Analytic Philosophy*, University of Oriental Piedmont.

In addition, I have participated in regular interdisciplinary events organized by the *Center for Science and Society* at Columbia University and attended regular meetings at New York University and the City University of New York.

V. Fundraising and Career Prospects

I have been awarded two fellowships:

- **Visiting Fellowship**, *Center for Philosophical Psychology*, **University of Antwerp**, 1 month (project on musical emotions).
- **Associate Researcher Fellowship**, FCT Portuguese Science and Technology Foundation, **University of Lisbon**, 6 years (project on musical emotions).

I will thus pursue my interdisciplinary research on musical emotions funded by the Cogito Foundation for the next 6 years.

I have also been offered an Instructor position at the **New York Film Academy**. Unfortunately, I had to renounce it because this institution does not sponsor visas.

Lastly, I have been shortlisted for interviews at the University of Rome II, the University of Rome III, Thomas Jefferson University (Philadelphia), the College of Mount Saint Vincent (New York), and the University of Turin.