

Dogmas of Understanding in Western Art Music Performance

Linda T. Kaastra (lkaastra@sfu.ca)

Cognitive Science Program, Simon Fraser University, 8888 University Drive

Burnaby, B.C., V5A 1S6

Preface:

This paper presents an exploration of the deeper (and some might say, striking) implications of the ontological shift from *materials* to *activity* in music performance analysis. That said, it is not meant to engage everything that might be said about music performance. For example, I do not discuss the highly influential work of psychologist Roger Chaffin and others in his lab (<http://psych.uconn.edu/faculty/chaffin.php>). Chaffin's research can be credited with opening the door for performers to systematically explore their working process, to unveil dimensions in music making (specifically regarding memorization and interpretation of music). The outcomes of his work have been profound for both the performers who participate and for a broader audience of researchers looking to explore performance. I highly recommend his work as a starting place for those seeking to understand their own working process.

The other set of ideas that are not explored in this paper are the “empirically motivated” studies of music performance that have *explanatory aims beyond practice*. My aim is to cultivate a “meaningful analytics” for performance, not to discover the neural basis for entrainment, for example. I remain somewhat suspicious of scientific research that “objectifies” the performer, where no attempt has been made to ground the concepts in practice. My aim is to offer a conceptual framework that allows performers to systematically unpack the tacit processes of performance in order to ground musical practice in a deeper exploration of the basic mechanisms of music making. I include some guiding questions that might be used as a basis for a meaningful analytics on instrumental practice after the conclusion of this paper.

Because music making is deeply social and richly meaningful, I recommend conceptual frameworks in the social and cognitive science of language use, most notably the work of Herbert H. Clark (1996, 1997). This paper borrows Clark's (1997) rhetorical device, because I have found it very challenging to convey the shift in ontology – which arguably must be done before studies are run. In terms of the theoretical perspective, one might find parallels in the work of ethnomusicologist Benjamin Brinner (1995), though his concepts have not to my knowledge been explored in Western Art Music performance.

The supporting examples are drawn from a case study of master classes offered by members of the London Symphony Orchestra on YouTube. The master classes, one or more for each instrument of the orchestra, were captured and analyzed systematically using third person thematic analysis (Kaastra, 2014). The warrant – what makes this more than just a subjective account – is based in the fact that the master classes are instructional materials, not first person accounts. The instrumentalists are teaching others how to prepare a taped audition, and ultimately how to play well in a live orchestra. As this paper reveals, teaching music is really about teaching how to attend in performance, not just how to play a passage. The instrumentalists delivering these master classes are professional musicians, and most of the players also teach professionally. Using standard qualitative analysis procedures, I systematically explored the entire set of master classes. The examples that are used to illustrate concepts in this paper are not intended to directly inform performance, rather, *to demonstrate layers of awareness in music performance* based on the conceptualizations of joint activity theory.

Dogmas of Understanding in Western Art Music Performance

Linda T. Kaastra (lkaastra@sfu.ca)

Abstract

This paper presents an exploration of the ontological shift from musical *materials* (i.e. melody, harmony, rhythm, texture, timbre, register) to *activities* in music performance analysis. The “dogmas” extend Herbert H. Clark’s conceptual framework for the study of joint activity in language use to explore music performance in the WAM tradition. A systematic analysis of London Symphony Orchestra masterclasses examines the basic mechanisms of music making in four main areas: representation, audience, interaction and tacit knowledge. This exploration leads to a broader account of cognition and creativity in music performance, one that bridges inner and outer processes of awareness around domains of coordination in joint activities. In this view, the conceptualizations of musical materials are viewed as targets of focal awareness rather than the basis for cognition in music making. This account, grounded in a rich third-person phenomenological analysis of instructional materials, paves the way for a “meaningful analytics” of musical practice.

Keywords: joint activity theory; ad hoc conceptualization; instrumental performance; creativity

Introduction

What does it mean to make music? There are many possible answers to this question from such diverse perspectives as music philosophy, music theory, ethnomusicology, music cognition, and performance analysis. The answers from these different fields draw on different ontologies of music. Scholarly fields differ in the aspects of music that can be conceptualized, experimented with or captured as data, and theorized.

We idealize music performance in order to study it. It is impossible to analyze music making without some idealizations. However, when the idealizations become “dogmas—convictions that are impervious to evidence, they become roadblocks to scientific progress” (H. H. Clark, 1997). This paper takes the view that many of the idealizations about music in the Western Art Music (WAM) scholarly tradition have hindered the meaningful study of a number of basic features of music making—such as multimodal coordination, layered meaning, instrumental affordances, tacit knowledge, and ad hoc conceptualization. These basic features of music making offer a path to “meaningful analytics” for musical practice – a bridge from subjective experience to a more systematic account of cognition and creativity in music making that is the basis of instrumental practice.

This paper addresses *dogmas of understanding* in four main areas of WAM performance: representation, audience, interaction, and tacit knowledge. These idealizations are built into our systems of training and advanced education and thus pervade scientific research on cognition in music performance. The dogmas and misconceptions are widespread, but not universal. Instrumentalists may take exception to some of the ideas. Instrumentalists take note: performance in WAM has never lost its creativity or complexity. Rather, the challenge is to find words for the tacit processes of negotiation in music making so that the scholarly community can include the kinds of knowledge and creative processes that are built up through years of practical training. The aim is to bring analytical practice and research on music performance more into line with current theories of representation, concept formation, situated cognition, and tacit knowledge. In doing so, I propose an account of cognition in music performance that bridges inner and outer processes of awareness around domains of coordination in the activities of making music.

Representation

When instrumentalists in the Western Art Music tradition make music, it is widely assumed that they create mental representations of the music—they internalize abstractions of musical materials and propose interpretations through a combination of expressive body motion and sound. There is a strong emphasis on the materials of music as the basis for musical thinking in WAM. While some have been calling for increased acknowledgement of the situated nature of music making (e.g. Cook, 1999; Ritterman, 2002; Brinner 1995), empirical research on WAM performance remains closely tied with its epistemological roots in music theory (Clarke, 2004; Gritten & King, 2006). The idea is that musical knowledge is based in the materials, not in the activities of making music. For most music theorists the question is not whether, but how strongly an interpretation should inform performance (Berry, 1989; Dunsby, 1995, 2002; Howell, 1992; Lester, 1995; Nolan, 1994; Rink, 2002, 2004; Rothstein, 1995; Sloboda, 1985). As Zbikowsky asserts, “understanding the way music theory instantiates cognitive processes will also help explain its enduring value” (2002, xi). There is a foregone conclusion that the conceptualizations of musical materials drive cognition in music performance; that basic cognitive processes arise from these conceptualizations (Zbikowsky, 2002). This paper argues that the conceptualizations of musical materials are, like idealizations in the study of language, “analytic fictions created for the purpose of those who study them” (Barsalou, 1987, 119). The first set of dogmas address these misconceptions about representation in music making.¹

¹ For a proper account of why music theory does have explanatory value see the section on musical thinking in this paper.

Analysis and Performance

In the analysis of performed music², musical materials (e.g. notes, rhythms, phrases, harmonies, melodies) need to be distinguished from musical *utterances* (see H.H. Clark, 1997). An utterance can be defined simply as the action of saying something. Musical utterances are the actions of producing musical sounds. Sounding a note is not just about its material qualities; it is about *how the note is sounded*, and *how meaning is associated with that sound*. For example, when a bassoonist “plays middle C” she coordinates her embouchure³, air speed and pressure, and fingers to produce a sound that satisfies the conditions for middle C. In practice, rehearsal, and performance an utterance of middle C can also signal a musical concept (e.g. the tonic⁴). At the same time, it serves as a *musical cue* conveying the dynamics (e.g. *mezzo piano*), tempo (e.g. *moderato*), character (e.g. *dolce, sotto voce*), and style. The utterance is also an invitation, “here we go; the piece is starting; please listen; it starts this way”. In addition, the utterance of C can present a meaningful evocation—a novel layer of meaning added for the benefit of members of the ensemble or audience⁵, “this is the way we heard Joe play it last time”. We recognize the utterance as “saying something” at these different levels of action and their corresponding layers of meaning (see H. H. Clark, 1996). The levels of action in music performance must be extended to account for the presence of a signal and a cue, as well as the possibility that a performance is also “speaking to” the musical work and its past performances as well as the physical and social environment in which it is currently being played.

Levels of action in a musical utterance:

- 1 – the utterance
- 2 – the signal for self and other
- 3 – the cue for self and other
- 4 – this instance of the musical work
- 5 – this physical and social situation

For the performer, each of these levels of activity is subsumed in one action. A performer does more than play a “middle C”—she presents a signal and cue to self and other, and to the listener, and to the performance space, and the social

² For simplicity, all references to performed music in this paper refer to WAM performance.

³ Embouchure is the combination of jaw, lips, teeth, and tongue on the instrument.

⁴ The tonic of a key, e.g. C is the tonic of a C major scale.

⁵ See Monson, 1996.

context. Writing on music performance tends to privilege the score as the source of meaning in music making (Kaastra, 2008b). However, this focus on musical materials has led to one of the oldest dogmas about meaning in music making.

D1(L): *Dogma of Musical Meaning (Listening): For listeners to understand a performance, they must first decode the musical materials.*

And its alternate,

D1(P): *Dogma of Musical Meaning (Performing): For performers to play a musical work, they must first decode the musical materials.*

The problem with these dogmas is that listeners and performers do understand musical utterances quite apart from their ability to analyze or decode the musical materials. We understand *what the performer is saying*. We “listen for” dynamics, timing, character, and more subtle nuances of style, timbre, resonance, and intonation. Members of the London Symphony Orchestra demonstrate awareness and mastery of these levels of activity in their instructional materials for the Youtube Symphony Orchestra project (Kaastra, 2014):

1. Bassist (level 1): “The sforzando needs to be a lean rather than a heavy accent.” “Pull weight away for diminuendo.”
2. Bass Trombone (level 2 signal): “Exaggerate the dotted rhythm so that the correct rhythm will be heard through the orchestra.”
3. Violin (level 3 cue): “The notes need to be beautiful but it is more important that you are clear about timing.”
4. Bassoon (level 4): “Think of captivating your audience in the same way Scheherazade did in order to avoid being killed.”
5. Tuba (level 5): “You need to sound like overfed first trumpets. We want all the energy and character of a first trumpet player, but on a big instrument.”

Notice that these instructions demonstrate *layers of awareness* in the activity of making music, not just how a passage ought to be interpreted. If musical thinking is based solely in representation and expression of musical materials, one would expect music instruction to reflect that. Instead we have a clear indication that the basis for musical thinking is strongly grounded in the activities of making music. The shift from materials to activities has profound consequences for how

we understand musical thinking, especially in the rich environment of the orchestra. This leads to a second dogma, the dogma of instrumental invariance.

D2 Dogma of Instrumental Invariance: Performers determine the meaning of musical materials independently from the constraints or affordances of their instrument.

The difference is perhaps greatest between harmonic and melodic instrumental performance. Igor Stravinsky's *Rite of Spring* is performed in two versions, an orchestral version and a two piano version (piano 4 hands). Pianists benefit from understanding the polychordal structure⁶ of the music because the piano is an harmonic instrument.⁷ Understanding the polytonality of the music is a helpful way to chunk finger motion, and so it makes sense that a pianist would find it meaningful both for practical and expressive purposes. But a woodwind player gains nothing by knowing the polychordal structure of a passage of music. Instead, the wind player must know something about what is salient for the purposes of coordinating her performance with that of other members of the ensemble.⁸ Performing on melodic instruments is a deeply situated and social activity. In order to perform in an ensemble, an instrumentalist has to know what is meaningful for the purposes of performance. She must attend from the particulars of her engagement with her instrument to the particulars of her engagement with others (Kaastra, 2013, 2014). The section of this paper devoted to tacit knowledge will explore this idea in more detail. For now, we will explore the how the concept of audience shapes the way we attend to musical utterances.

Audience

We can think of audience literally, as in those participants who are seated in front of a stage, watching, listening, and clapping on cue. But audience as I discuss it here represents a broader set of ideas regarding the purpose for finding meaning in a social context (H. H. Clark, 1997). The broader concept of audience includes the aspects of the situation that play a role in shaping the interaction. Audience can be explored at different units and levels.

One unit and level of analysis is the ensemble. When two or more individuals play together, they are responding *with* each other. Research that takes an ecological approach (e.g. Reybrouck, 2012) supports the idea that we “listen for”

⁶ Polychordal means the sounding of two different chords at the same time. This produces the dissonance that is characteristic of this work.

⁷Sheila Silver, graduate course, “Contemporary Music Analysis”, SUNY Stony Brook, 1995.

⁸ This is not to suggest that the analysis of musical materials won't deepen our understanding of the music; simply that it is not what a woodwind player needs to know to do her job.

based on our roles in the experience. The musical utterances become meaningful *for someone in a specific musical setting*. This challenges the idea that all music is understood in the same way. We can borrow from H. H. Clark's D4 (1997, p. 574):

D3: *Dogma of Undifferentiated Hearers: Listeners understand musical utterances in the same way regardless of their role.*

And its cousin,

D4: *Dogma of Autonomous Performance: A musical work means the same thing no matter where it is performed.*

With a focus on musical materials, it is difficult to conceptualize how musical meaning is arrived at in different contexts. This is in part because musical materials in the WAM tradition are so theoretically rich and meaningful in an abstract sense. One way to understand this is to explore how ensemble roles influence processes of attention and sensory engagement in performance.

Performer Roles

In live performance, there are explicit and implicit roles for each person performing, and the roles can change based on the *content* of the music and the *process* for performance. In orchestral performance, it is possible to both overestimate and underestimate the importance of seating in how musicians understand their work. On the one hand, we encounter the misconception that orchestral performance is “ossified, stilted, and predictable” (Sawyer & DeZutter, 2009). There is a common misconception that the conductor plays the orchestra, and that individual players bear little personal responsibility for the overall success of a performance. The reality, as most instrumentalists know, is far more complex.

D5: *Dogma of Orchestral Hierarchies: The conductor plays the orchestra*

In this view, the activity of performing in a large ensemble seems, to anyone who has not actually played in an orchestra, largely automated. Of course, performances are never the same from one night to another, and this view seriously overestimates the role of the conductor in getting it right. In reality, seating determines a great deal about how we attend to the activity of making music from within the orchestra. There are explicit roles in the orchestra, for example, the first chair is the leader of the section, and the concertmaster is the leader of the ensemble. These roles are particularly important for organizing the procedures of rehearsal and making larger interpretive decisions. When the music starts, however, the content will often imply alternate hierarchies for listening. For example, the woodwind section may need to “listen down” to the

second bassoon to lock in their tuning of a chord. Then they may shift their attention to the flute to support a quite solo passage. London Symphony Orchestra musicians offer a glimpse of some alternate hierarchies that determine what they are “listening for” in a series of online masterclasses.

1. Oboe: “Be under the flutes.”
2. Bassoon: “This melody is a memory of the longer oboe melody played earlier in the movement.”
3. Timpani: “Be near the trumpets, because you need to be hand in glove.”; “You need to be locked into the basses and cellos.”
4. Clarinet: “You don't want to stick out; you want to be the icing on the cake.”; “Play in character of the flutes.”

This is by no means a complete account of the alternate hierarchies that are possible, nor are these instructions intended to be prescriptive. The examples support the idea that a hierarchy of listening drives processes of attention and awareness in ensemble performance. Expert instrumentalists like the members of the LSO understand that the music implies certain *roles for the purposes of attention*, and those roles determine what they are listening for in their own playing and in the orchestra. We can call this “situated listening”, after Hutchins (2005). The oboist is positioning his sound below (quieter than) the flute sound. The bassoonist is playing his melody just the way the oboist did earlier in the movement, but a bit softer. The timpanist anchors his performance in that of other sections. The clarinetist is positioning his sound in the first example as “icing” and the second example he is mimicking a flute sound. Notice that these instructions go beyond interpretation of the musical materials and into the activities required for engaging in music making. The players do not say, “play it exactly like this”. They say, “Listen this way, and place your sound [under, over, inside] what you hear.” So far this discussion calls into question the following statement:

D6: Dogma of Determinate Meaning: Performers have an interpretation of a musical work in mind and it is up to the audience to identify that interpretation.

While performers certainly are concerned about how their music reaches the audience, the concept of audience should be broadened to include the situated listening from within the ensemble.

Interaction

Performance in an orchestra is a thoroughly social activity. When one player “says something”, the entire group responds in kind. Responding and coordinating responses happens in real time, in less time than it takes to think through what just happened. A good way to understand this is by drawing out another of H. H. Clark’s “dogmas of understanding” (D7 Clark, p. 581).

D7: Dogma of Autonomous Processes: Playing and listening are autonomous processes

Performers “coordinate at all levels of processing” (Clark, 1996). They monitor their own and others’ contributions for successful completion. This monitoring is a basis for participating; it is ongoing; it is iterative; it is “responding with”. Successful completion does not refer to flawless interpretation, but to the ability of the performers to draw out meaningful connections with each other. Each utterance is placed meaningfully in a responsive context.⁹ Orchestral performance is not as brittle as we are led to believe. As with other kinds of meaningful social interaction (Clark, 1997), players adapt in real time.

D8: Dogma of Musical Perfection: The processes of understanding music are fundamentally designed for flawless utterances.

Instrumentalists do strive for perfection. However, a common misconception is that there is one perfect way to utter a musical phrase. In reality, what is more important about a musical utterance is the sense in which it is connected to what is going on around it. You see this reflected in statements by members of the LSO:

1. Cello: “Practice it all in one bow, in separate bows, so that you are flexible and can do it all ways.”
2. Oboe: “Work it out intellectually but then play it naturally.... Imagine where the music is flowing to. We could play it very static, just trying not to make a mistake, but this wouldn’t be the essential meaning of playing. ...The music should sing, it should relax and it should express itself.”

Flexibility is mentioned over and over again in the LSO’s Youtube Symphony Orchestra masterclasses. If orchestral performance were as scripted and “mindless” as we are led to believe in the literature on music making (e.g. Sawyer, 2003), musicians would not emphasize this flexibility. In reality, orchestral music performance requires a tremendous presence of

mind to continually attend to, pick up, and draw out what is meaningful. Flexibility and the ability to recover after a mistake are two critical components of expert performance. When mistakes are made, the performance does not stop. Rather, the players continue to pick up what is working and move forward. Some members of the LSO discuss this in their lessons.

1. Flute: “Don’t get caught up with the rests. If you play the rests, the piece will come to a stop.”
2. Cello: “Practice the shift, of course, but in performance, think of something else before the shift.”

Both of these instructions focus on the contents of awareness. The flutist is saying that to keep a feeling of movement through a series of melodic fragments in a passage; he has to cover over the rests rather than giving the rests full attention. The cellist is giving instructions about a very challenging and exposed shift. These instructions came to her from another cellist, who has a strong record of success with that shift. “Think of something else” – don’t put all of your attention to the one shift; instead move through that tricky area and you will either hit or miss, but you will recover gracefully. This leads to another misconception that touches on the nature of creativity in music performance.

D9: Dogma of Scriptedness: Performance that relies on a musical score fundamentally lacks creativity.

Music making never just appears out of nowhere. It does not spontaneously erupt in forms we have never experienced. What instrumentalists miss by focusing on the perfect expression of a phrase is the idea that, by practicing and rehearsing, we are *learning to attend to the particulars of performance* to learn greater awareness and control over those particulars so that when the moment comes and we are performing in context, we can manage the tremendous mental resources required and use our ability to attend in specific ways, to connect what we are doing to what is going on all around us.¹⁰ It is the process of connecting aspects of the music that is creative in the orchestra, as well as in less scripted and improvised music making. When we play without a score, we simply use a different set of coordination keys (Kaastra, 2008a, 2011).

Tacit Knowledge

There is another dogma, deeply buried in our collective misunderstanding of music making:

⁹ For more on this, see the action ladder that is used to conceptualize monitoring in face-to-face conversation (Clark, 1997 p. 582).

D10: *Dogma of Mindless Performance: The performer can make music but be unaware of any expressive or creative processes.*

And its cousin,

D11: *Dogma of Musical Expertise: A performer is knowledgeable about music on in so far as she can speak intelligently about it.*

Tacit knowledge and creativity

The difficulty here is two-fold. Firstly, critics (including our own inner critics) maintain that a performance that does not move us in some way, often related to an interpretive ideal, lacks expressive or creative purpose. Secondly, theorists, (including our own inner theorists) maintain that the only knowledge that counts is declarative knowledge “about” the music. Sadly, when we believe that performance is only knowledgeable when it is expressed in declarative terms, we lose the ability to conceptualize the more basic cognitive processes of musical engagement. When this understanding is limited, it only makes sense that salient aspects of the performance might be lost with it. Our understanding can only progress when we can ask the right questions.

I propose an account of cognition in music performance that emphasizes processes of awareness around the particulars of music making (Kaastra, 2008a, 2008b, 2011, 2013, 2014). This account applies Polanyi’s structure of tacit knowledge to explain how instrumentalists bridge inner and outer processes of attention and awareness in performance. In essence, I am proposing an account of cognition in music making that would benefit from further exploration in the range of approaches currently used to study ad hoc conceptualization in language (see Barsalou 1983, 1999, 2003; Barsalou & Prinz, 2002; Glushko et al. 2008; Casasanto & Lupyan, 2015). In this view, the structural and metaphorical conceptualizations¹¹ of music theory are targets of focal awareness, rather than the basis for cognition in music making.

In the orchestra, performers monitor *the particulars* of their own and others’ playing (Kaastra, 2013, 2014). The particulars in music performance include any and all aspects of sensory engagement that can be manipulated. The possibilities range from the very obvious – finger and arm motion, to the very subtle – the intake of a breath and embouchure formation.

Polanyi (1966) says that tacit knowing always involves two “terms”, the *proximal* and the *distal*. “We attend from something for attending to something else... from the features to the face” (1966, p. 10). Internally, if I have “play as softly as you can” as my target, many aspects of my subsidiary awareness are automatically restructured to meet that target. These

¹⁰ See D. Schoen, “The Reflective Practitioner” ch. 8 for a full discussion of reflection-in-action.

can include air speed, air pressure, finger pressure, hand position, posture, embouchure pressure, embouchure size, embouchure shape, and tongue placement. I will not be attending focally to each of those aspects of my performance; rather, I choose a target that will work best for current purposes. Sometimes a target will include structural knowledge of the score (e.g. play it more quietly on the repeat). Other times a target might have more to do with an imaginative portrayal (e.g. play it with all of the filigree of a Viennese ball).

In musical terms, we attend *from* the technical particulars *to* the utterance. The technical particulars are proximal; they belong in our subsidiary awareness, literally inside our bodies. The note is distal; it is the situation we are striving to master, the object of our focal awareness. As we progress to increasing levels of musical sophistication, we choose different targets of awareness. Those targets restructure the aspects of subsidiary awareness to meet new goals. This is the functional aspect of tacit knowledge (Polanyi, 1966).

The particulars of performance on the different instruments vary greatly. Stringed instruments do not involve the breath, but the bow. Yet, string and wind players are able to recognize based on their mutual knowledge, beliefs, expectations, and experiences (Clark, 1996) what is meaningful for the purposes of coordinating the performance (Kaastra & Kirsh, 2013).¹² One way to explore this is to say that the particulars of performance expose *perceptual objects* for us (see Noë, 2012).

For example, performance on a brass instrument requires a very complex coordination of perceptuo-motor processes. It involves tactile sensations in the lips, jaw, mouth, and throat, and tactile and kinesthetic sensations in the airstream, fingers, hands, and arms. Sensory perception in music making involves listening; it also involves other sensory systems such as chronoception, proprioception, and sometimes nociception. Coordinating performances requires not only a deep familiarity with ones own sensory engagement, but by extension a familiarity with what other musicians are also experiencing as they play. I direct the reader to a wonderful performance by the ensemble, Mnozil Brass called, “Lonely Boy” (see reference list). In order for this performance to be possible, the brass players must have very stable access to shared perceptual objects in performance. They literally share their performance of an instrument with each other.

Performers manipulate the particulars in order to produce musical utterances that are meaningful for current purposes. This is true at a very basic level of music making. Even without an instrument in hand, we can manipulate the particulars of clapping to create meaningful material. Even keeping the same rhythm and tempo, we can use flat or cupped hands; we can alter the distance and pressure to create different qualities of clapped sound. It is also what the great teachers

¹¹ See Larson, S. “Musical Forces” (2012).

¹² See also Kaastra, 2012.

address when they focus doggedly on technique (famous examples include the teaching of Janos Starker, cello, and Stephen Maxym, bassoon and many, many others).

Concluding Thoughts

Orchestral performance is enjoying an increased popularity – yet the gulf between performance and scholarship in WAM is still vast. It is time to move beyond the dogmas and misconceptions of the tradition and engage in meaningful analytics on practice. Doing this will systematically acquaint instrumentalists with their tacit knowledge and socially situated creativity, and make it possible to carry out a meaningful analytics on practice without adopting an unsuitable ontology based solely in the materials of music. Creativity is a fundamental aspect of human cognition (see Barsalou & Prinz, 2002; Johnson, 1987) and yet, many dogmas of understanding obstruct a discussion of creativity in Western Art Music performance. It is time that some of these dogmas are let go in favor of a deeper exploration of the fundamental mechanisms of music making. These mechanisms share a common root with the processes that support language use. They are found in our ability to manage joint awareness, understand roles and goals, enjoy meaningful multimodal interaction, and respond meaningfully with each other.

Questions for experimentation and analytics in music performance:

1. Analyze the *hierarchies of listening* for a single part in a piece for large ensemble. When does the target shift? What/who are you listening for? Does changing how you listen also change how you sound?
2. Experiment with the way you attend to a tricky passage. Does it help to subdivide, or think in larger groups? Does it help to “anchor” a passage by emphasizing certain notes? What happens if you change how you attend to finger or arm motion (e.g. think only of lifting the fingers, then try focusing on pressing the fingers)? What happens if you assign a character to the way you think about that passage? Can you change the character? And change it again? What happens if you play it the way it would sound on another instrument?
3. Analyze the particulars of music making on your instrument. How does a change in [dynamics, genre, style or any other expressive goal] restructure those particulars? What changes when you try to mimic someone else’s musical expression?
4. Analyze the way your playing changes in different contexts, and for/with different individuals. Do certain people make you sound great? What changes when that person enters the room?

Acknowledgments

This paper pays sincere and humble homage to Herbert H. Clark, and to one of his brightest papers, “Dogmas of Understanding” (1997). The author would also like to acknowledge Brian Fisher for his constant encouragement and support.

References

- Barsalou, L.W. (1983). Ad hoc categories. *Memory and Cognition*, 11, 211–227.
- Barsalou, L.W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, 22, 577–660.

- Barsalou, L. (2003). "Situated simulation in the human conceptual system." *Language and Cognitive Processes*, 18(5/6): 513-562.
- Barsalou, L. & Prinz, J. (2002). "Acquisition and Productivity in Perceptual Symbol Systems: An Account of Mundane Creativity". In Dartnall, T. (ed). *Creativity, Cognition, and Knowledge: An Interaction*. Westport, CT: Praeger.
- Berry, W. (1989). *Musical Structure and Performance*. New Haven, CT: Yale University Press.
- Brinner, B. (1995). *Knowing Music Making Music: Javanese Gamelan and the Theory of Musical Competence and Interaction*. University of Chicago Series in Ethnomusicology. Chicago: Chicago University Press.
- Casanto, D. & Lupyan, G. (2015). All Concepts are Ad Hoc Concepts. In *The Conceptual Mind: New Directions in the Study of Concepts*. E. Margolis & S. Laurence (Eds.) pp. 543-566. Cambridge: MIT Press.
- Clark, H. H. (1996). *Using Language*. Cambridge: Cambridge University Press.
- Clark, H. H. (1997). Dogmas of Understanding. *Discourse Processes* 23 (3): 567-598.
- Clarke, E. (2004). "Empirical Methods in the Study of Performance." In *Empirical Musicology: Aims, Methods, Prospects*, edited by Eric Clarke and Nicholas Cook. Oxford, New York: Oxford University Press.
- Cook, N. (1999). "Analysing Performance and Performing Analysis." In *Rethinking Music*, edited by Nicholas Cook and Mark Everist. New York: Oxford University Press.
- Dunsby, J. (1995). *Performing Music: Shared Concerns*. Oxford: Clarendon Press.
- Dunsby, J. (2002). "Performers on Performance." In *Musical Performance: A Guide to Understanding*, edited by John Rink. Cambridge: Cambridge University Press.
- Glushko, R. J., Maglio, P. P., Matlock, T. and Barsalou, L. (2008). Categorization in the wild. *Trends in Cognitive Sciences*. Elsevier Ltd. doi:10.1016/i.tics.2008.01.007
- Gritten, A. & King, E. (2006). *Music and Gesture*. Ashgate Publishers.
- Howell, T. (1992). "Analysis and Performance: The Search for Middleground." In *Companion to Contemporary Musical Thought*, edited by John Paynter et al. London, New York: Routledge.
- Hutchins, E. (1995). *Cognition in the Wild*. Cambridge, MA: MIT Press.
- Hutchins, E. (2000). Distributed Cognition. *International Encyclopedia of the Social and Behavioral Sciences*. Available online: <http://download4.org/Distributed-cognition-pdf.html>
- Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press, 1990.

- Kaastra, L. (2008a). *Systematic Approaches to the Study of Cognition in Western Art Music Performance*. PhD. Dissertation, The University of British Columbia. Available online: <http://hdl.handle.net/2429/678>.
- Kaastra, L. (2008b). "Performance Inquiry and Cognitive Science: A Search for Common Ground" in *College Music Symposium* 48: 131-156.
- Kaastra, L. (2011). "Annotation and the Coordination of Cognitive Processes in WAM." *International Symposium on Performance Science*.
- Kaastra, L. (2012). Conceptual Framework for the Study of Creativity in Western Art Music Performance. Presentation, September 24, 2012. Available online: <https://sfu.academia.edu/LindaKaastra>
- Kaastra, L. & Kirsh, D. (2013). "Embodied Creativity in Bassoon Performance." Performance Studies Network 2nd International Conference, Cambridge University.
- Kaastra, L. (2014). Working paper: Creativity in Western Art Music Performance. (submitted).
- Lakoff, G. (1987). *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*. Chicago: University of Chicago Press.
- Lakoff, G. & Johnson, M. (1999). *Philosophy in the Flesh*. New York: Basic Books.
- Larson, S. (2012). *Musical Forces: Motion, Metaphor, and Meaning in Music*. Bloomington, IN: Indiana University Press.
- Lester, J. (1995). "Performance and Analysis: Interaction and Interpretation." In *The Practice of Performance*, edited by John Rink. Cambridge: Cambridge University Press.
- Kirsh, D. (2003). "Implicit and Explicit Representation", in (Nader, L. et al) *Encyclopedia of Cognitive Science*. Nature Publishing, pp, 478-481.
- Mnozil Brass "Lonely Boy" (2012).
http://www.youtube.com/watch?v=m_QRd8SjKKM
- Monson, I. (1996). *Saying Something: Jazz Improvisation and Interaction*. Chicago: Chicago University Press.
- Narmour, E. (1990). *The Analysis and Cognition of Basic Melodic Structures: The Implication-Realization Model*. Chicago: University of Chicago Press.
- Noë, A. (2004). *Action in Perception*. Cambridge, MA: MIT Press.
- Noë, A. (2012). *Varieties of Presence*. Cambridge, MA: Harvard University Press.
- Nolan, C. (1994). "Reflections on the Relationship of Analysis and Performance." *College Music Symposium*. 33/34: 112-39.
- Polanyi, M. (1958). *Personal Knowledge: Towards a Post-Critical Philosophy*. Chicago: University of Chicago Press.
- Polanyi, M. (1966). *The Tacit Dimension*. London: Routledge. (University of Chicago Press 2009 reprint).

- Reybrouck, M. (2012). "Musical Sensemaking and the Concept of Affordance: an ecosemiotic and experiential approach." *Biosemiotics* 5(3): 391-409.
- Rink, J. (2002). "Analysis and (Or?) Performance." In *Musical Performance: A Guide to Understanding*, edited by John Rink. Cambridge: Cambridge University Press.
- Rink, J. (2004). "The State of Play in Performance Studies." In *The Music Practitioner: Research for the Music Performer, Teacher, Listener*, edited by Jane Davidson. Hants, England: Ashgate Publishing Limited.
- Ritterman, J. (2002). "On Teaching Performance." In *Musical Performance: A Guide to Understanding*, edited by John Rink. Cambridge: Cambridge University Press.
- Rothstein, W. (1995). "Analysis and the Act of Performance." In *The Practice of Performance: Studies in Musical Interpretation*, edited by John Rink. Cambridge: Cambridge University Press.
- Sawyer, R. K. (2003). *Group Creativity: Music, Theatre, Collaboration*. New York, Routledge.
- Sawyer, R. K. & DeZutter S. (2009). "Distributed Creativity: How Collective Creations Emerge From Collaboration" in *Psychology of Aesthetics, Creativity, and the Arts* 3(2): 81-92.
- Zbikowsky, L.W. (2004). *Conceptualizing Music: Cognitive Structure, Theory, and Analysis*. Oxford University Press.