



Universiteit  
Leiden  
The Netherlands

## **The polyphonic touch : coarticulation and polyphonic expression in the performance of piano and organ music**

Wright, A.J.

### **Citation**

Wright, A. J. (2016, June 22). *The polyphonic touch : coarticulation and polyphonic expression in the performance of piano and organ music*. Retrieved from <https://hdl.handle.net/1887/41220>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/41220>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/41220> holds various files of this Leiden University dissertation

**Author:** Wright, Andrew

**Title:** The polyphonic touch : coarticulation and polyphonic expression in the performance of piano and organ music

**Issue Date:** 2016-06-22

## Glossary

**Affordance** - the possibility of some action existing between an organism and its environment (Gibson 1979; see footnote to Introduction).

**Bodiliness** - the “awareness of our own body - observing how it has an influence on the perception of stimuli” (Peñalba Acitores 2011: 224).

**Body schemata** - learned motor patterns, habits, or dispositions that require little mental effort to carry out (§5).

**Coarticulation** - the corporeal subsumption of smaller units of gesture under superordinate trajectory shapes of movement (§12.2).

**Disembodied expressed timescale** - a timescale shaped with expression in sound defining the grouping that it outlines, but without a corresponding overarching extensional gesture (§14.3).

**Embodied expressed timescale** - a timescale shaped with expression in sound defining the grouping that it outlines, combined with a corresponding overarching extensional gesture (§14.3).

**Embodied non-expressed timescale** - a timescale embodied with an extensional gesture that does not result in an audible expression defining the grouping that it outlines (14.3).

**Extensional gesture** - musical gesture that results in actual body movement in space (§9.2).

**Framing** - a conscious process used to separate or insulate a part of pre-reflective experience in order to protect it from being objectified by the conscious mind (§6.2).

**Gestural-sonic objects** - holistically perceived chunks of musical gesture based on the convergence of movement and sound and defined by coarticulation (§13.1).

**Grabiness** - the “capacity of environmental stimuli to attract our attention - in relation to the bodily responses in us that they elicit” (§17, Peñalba Acitores 2011: 224).

**Imagination perspective** - the temporal perspective involving thinking ahead in performance whereby sounds are imagined *before* their execution (§9.6.1)

**Intentional gesture** - musical gesture that is imagined but not realised in body movement (§9.2).

**Interpretation** - the act of making conscious decisions in shaping a musical performance (§5).

**Intonation** - a concept that connects all manner of socially-shared affective experience directly to the shaping of the most basic and irreducible units of music, a shaping that is neither only a musical image nor only a technical movement, but an organic integration of both (§15.2.1.3).

**Invisible body** - a pathological form of self-consciousness where the body is “absent from experience” (§6.1, Legrand 2007).

**Levers** - parts of the playing mechanism that are able to deliver power, including: torso, top arm, forearm, wrist, fingers, rotation (§13.2).

**Lines** - affordances of scores that can be voiced in performance (§17).

**Listening perspective** - the temporal perspective involving the performer’s own perception after the notes have been played (§9.6.3).

**Musical details** - objectively measurable modulations of dynamics, timing, and articulation occurring on the sounding surface of the music (§10.1).

**Neutral timescale** - a timescale neither embodied with an overarching extensional gesture nor with expression defining the grouping that it outlines (§14.3).

**Opaque body** - a form of self-consciousness where the body is “taken as an intentional object of consciousness” (§6.1, Legrand 2007).

**Performative body** - a form of self-consciousness characterised by a “pre-reflective experience of the body itself” (§6.1, Legrand 2007).

**Playing mechanism** - the musician’s body, specifically the composite of levers used in playing (§13.2).

**Playing perspective** - the temporal perspective associated the actual moment of execution (§9.6.2).

**Polyphonic expression** - a performative texture characterised by simultaneous divergence in expression (§3). More specifically, a form of voicing characterised by either fractional timescale relationships or divergence in direction of gesture (§17.5). An example of divergence in expression is found in Example I.1.

**Polyphony** - a stylistic description of musical texture with counterpoint as a defining feature, characterised by its distinction from homophony (§2).

**Timescale** - a unit of musical time measured in the score, such as one beat or one measure (§3).

**Transparent body** - a form of self-consciousness in which the body is apparent in the “pre-reflective bodily experience of the world” (§6.1, Legrand 2007).

**Understanding** - a non-conceptual and primarily pre-reflective embodied reaction, depending on the body schemata of the performer (§5).

**Voices** - continuities of various elements, such as lines, which are created in performance (§17).

## References

- Albert, N., Weigelt, M., Hazeltine, E., Ivry, R. B. (2007). Target selection during bimanual reaching to direct cues is unaffected by the perceptual similarity of the targets. *Journal of Experimental Psychology: Human Perception and Performance*, 33, 1107-1116.
- Alexander, F. M. (1932). *The Use of Self*. Suffolk: Richard Clay Publishing.
- Altieri, C. (2015). *Reckoning with the Imagination: Wittgenstein and the aesthetics of literary experience*. Ithaca, NY: Cornell University Press.
- Arx, V. (2014). *Piano Lessons with Claudio Arrau*. Oxford: Oxford University Press.
- Badura-Skoda, P. (1973). Preface to *Etudes op. 10* by Frederic Chopin. Vienna: Wiener Urtext Edition.
- Bakhtin, M. M. (1984). *Problems of Dostoevsky's Poetics*. Emerson, C. (trans). Manchester: Manchester University Press.
- Baraldi, F. B., Poli, G. D., & Rodà, A. (2006). Communicating expressive intentions with a single piano note. *Journal of New Music Research*, 35(3): 197–210.
- Barry, C. A. (2011). *Continuing Abby Whiteside's legacy -- the research of pianist Sophia Rosoff's pedagogical approach (based on the playing principles outlined in the book On Piano Playing by Abby Whiteside, with practice and performance observations by Carol Ann Barry)*. Retrieved from [http://www.lib.jmu.edu/general/etd/2011/masters/barryca/barryca\\_doctorate\\_11-13-2011.pdf](http://www.lib.jmu.edu/general/etd/2011/masters/barryca/barryca_doctorate_11-13-2011.pdf). Last accessed March 3, 2015.
- Behmer, L. P. (2010). Reading sheet music activates the mirror neuron system of musicians: an EEG investigation. WWU Masters Thesis Collection. Retrieved from <http://cedar.wwu.edu/wwuet/41>. Last accessed May 3, 2015.
- Behmer, L. P., & Jantzen, K. J. (2011). Reading sheet music facilitates sensorimotor mu-desynchronization in musicians. *CLINPH Clinical Neurophysiology*, 122(7), 1342–1347.
- Benedetti, J. (1988). *Stanislavski: An Introduction*. New York: Routledge.
- Bengson, J., & Moffett, M. A. (2011). Two Conceptions of Mind and Action: Knowing how and the Philosophical Theory of Intelligence. In J. Bengson & M. A. Moffett (eds), *Knowing how: essays on knowledge, mind, and action* (pp. 3–58). Oxford: Oxford University Press.
- Bengtsson, I. & Gabrielsson, A. (1980). Methods for analyzing performance of musical rhythm. *Scandinavian Journal of Psychology*, 21, 257-268.

- Bernays M, & Traube C. (2014). Investigating pianists' individuality in the performance of five timbral nuances through patterns of articulation, touch, dynamics, and pedaling. *Frontiers in Psychology*, 5, 35-53.
- Biddle, M. E. (1996). *Polyphony and Symphony in Prophetic Literature: Rereading Jeremiah 7-20*. Macon, GA: Mercer University Press.
- Bonpensiere, L. (1953). *New pathways to piano technique; a study of the relations between mind and body with special reference to piano playing*. New York: Philosophical Library.
- Booth, C. (2010). *Did Bach really mean that?: deceptive notation in Baroque keyboard music*. Wells: Soundboard.
- Boulez, P. (1971). *Boulez on Music Today*. S. Bradshaw & R. R. Bennett (trans). Cambridge, MA: Harvard University Press.
- Bråten, S. (2007). *On Being Moved; from mirror neurons to empathy*. Amsterdam: John Benjamins. Retrieved from <http://public.ebib.com/choice/publicfullrecord.aspx?p=622929>. Last accessed Dec. 21, 2015.
- Breene, S. (2007). Mozart's violin sonatas and the gestures of embodiment: The subjectivities of performance practice. PhD dissertation. Duke University. Retrieved from <http://gradworks.umi.com/33/17/3317747.html>. Last accessed May 2, 2015.
- Brody, E., & Larue, J. (1986). Trois Nouvelles Etudes. *The Musical Quarterly*, 72(1), 1-15.
- Brough, J. B. (1991). Translator's Introduction. In E. Husserl, *On the Phenomenology of the Consciousness of Internal Time (1893-1917)*. J. Brough (trans). Dordrecht: Kluwer Academic Publishers.
- Brown, M. H. (1974). The Soviet Russian Concepts of "Intonazia" and "Musical Imagery." *The Musical Quarterly*, 60(4), 557-567.
- Buxbaum, L. J., & Kalénine, S. (2010). Action knowledge, visuomotor activation, and embodiment in the two action systems. *Annals of the New York Academy of Sciences*, 1191, 201-218.
- Cadoz, C. and Wanderley, M. M. (2000). Gesture - Music. In M. M. Wanderley and M. Battier (eds), *Trends in Gestural Control of Music* (pp. 71-93). Paris: IRCAM.
- Cadwallader, A., & Gagne, D. (2006). *Analysis of Tonal Music: A Schenkerian Approach* (2<sup>nd</sup> edition). Oxford: Oxford University Press.
- Carson R.G. (2004). A simple and unified approach to human voluntary movements. *Journal of Motor Behavior*, 36, 378-380.

- Castiello, U. and M. Jeannerod (1991). Measuring time to awareness. *Neuroreport* 2, 797-800.
- Cervino, A. (2013). Verbalising the Intangible: An Exploration towards a Performance of Alfred Schnittke's Second Piano Sonata. *Music + Practice* 1. Retrieved from <http://musicandpractice.org/musicandpractice/article/view/22>. Last accessed Jan. 3, 2015.
- Clark, A. (1997). *Being there putting brain, body, and world together again*. Cambridge, MA: MIT Press. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=1466>. Last accessed Nov. 14, 2014.
- Clarke, E. F. (2005). *Ways of Listening: an ecological approach to the perception of musical meaning*. Oxford: Oxford University Press.
- Clarke, E. F. & Davidson, J. W. (1998). The Body in Performance. In W. Thomas (ed.) *Composition-Performance-Reception* (pp. 74-92). Aldershot, Ashgate.
- Clarke, E.F. (1988). Generative principles in music performance. In J. Sloboda (ed), *Generative Processes in Music: The Psychology of Performance, Improvisation, and Composition* (pp. 1-26). Oxford: Clarendon.
- Coessens, K., Crispin, D., & Douglas, A. (2009). *The artistic turn: a manifesto*. Ghent: Orpheus Instituut; Distributed by Leuven University Press.
- Cone, E. (1982). *The Composer's Voice*. Berkeley, CA: University of California Press.
- Cook, N. (2001). Between process and product: music and/as performance. *Music Theory Online: The Online Journal of the Society for Music Theory*, 7(2). Retrieved from <http://www.mtosmt.org/issues/mto.01.7.2/mto.01.7.2.cook.html>. Last accessed Dec. 14, 2015.
- Cook, N. (2014). *Beyond the Score: Music as Performance*. Oxford: Oxford University Press.
- Cooke, P., Frobenius, W., Bithell, C., & Zemtsovsky, I. (s.a.). Polyphony. *Grove Music Online*.
- Currie, M. (2013). *The Unexpected: Narrative Temporality and the Philosophy of Surprise*. Edinburgh: Edinburgh University Press.
- Cyr, M. (1992). *Performing Baroque Music*. Aldershot: Ashgate.
- Dahl, S., & Bevilacqua, F. (2010). Gestures in performance. In M. Leman & R. I. Godøy (eds), *Musical Gestures* (pp. 36–68). New York: Routledge.
- Damasio, A. (1999). *The Feeling of what Happens*. New York: Harcourt Brace.

- Davidson, J. W. (2002). Communicating with the body in performance. In J. Rink (ed), *Musical Performance: a guide to understanding* (pp. 144–152). Cambridge: Cambridge University Press.
- Davidson, J., & Clarke, E. (1998). The body in performance. In W. Thomas (ed), *Composition, Performance, Reception* (pp. 74–92). Aldershot: Aldersgate.
- De Alcantara, P. (1997). *Indirect Procedures: a musician's guide to the Alexander technique*. Oxford: Clarendon Press.
- De Groot, R. (2005). Perspectives of polyphony in Edward Said's writings. *Alif: Journal of Comparative Poetics* 25, 219-240.
- De Groot, R. (2010). Music at the Limits: Edward Said's musical elaborations. In *How the West was Won: Essays on the literary imagination, the canon, and the Christian middle ages for Burcht Pranger* (pp. 127–145). Leiden: Brill.
- De Vega, M., Glenberg, A., & Graesser, A. (2008). *Symbols and Embodiment: Debates on meaning and cognition*. Oxford University Press. Retrieved from <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199217274.001.0001/acprof-9780199217274>. Last accessed Dec. 15, 2014
- Delalande, F. (2003). Sense and Intersensoriality. *Leonardo*, 36(4), 313–316.
- Desain, P. & Honing, H. (1993). Tempo curves considered harmful. In "Time in contemporary musical thought" J. D. Kramer (ed), *Contemporary Music Review* 7(2), 123-138.
- Diedrichsen, J., Hazeltine, E., Kennerley, S. & Ivry, R. B. (2001). Absence of bimanual interference during directly-cued actions. *Psychological Science*, 12, 493-498.
- Dixon, G. T. (2007). *Polystylism as Dialogue*. PhD Dissertation. Goldsmiths College.
- Doğantan-Dack, M. (2011). In the beginning was gesture: piano touch and the phenomenology of the performing body. In E. King & A. Gritten (eds), *New Perspectives on Music and Gesture* (pp. 243–265). Aldershot: Ashgate.
- Doğantan-Dack, M. (2015). The Role of the Musical Instrument in Performance as Research: the piano as a research tool. In M. Doğantan-Dack (ed), *Artistic Practice as Research in Music: Theory, Criticism, Practice* (pp. 169-202). Aldershot: Ashgate.
- Dreyfus, H. L. (1979). *What computers can't do: the limits of artificial intelligence*. New York: Harper & Row.
- Ehrenzweig, A. (1967). *The Hidden Order Of Art*. Berkeley: University of California Press.
- Eigeldinger, J. J. (1988). *Chopin as Seen by his Pupils*. N. Shohet (trans). Cambridge: Cambridge University Press.

- Eitan, Z. & Granot, R. (2006). How music moves: musical parameters and listeners' perceptions of motion. *Music Perception* 25(3), 221-247.
- Ekier, J. (ed) (2000) Chopin: Etiudy. Warsaw: Fundacja Wydania Narogowego : Polskie Wydawn.
- Fairclough (2004). Sollertinskii and dialogical symphonism. In C. Brandist, D. Shepard, G. Tihanov (eds), *The Bakhtin Circle* (pp. 167-185). Manchester: Manchester University Press.
- Fairclough, P. (2006). *A Soviet credo: Shostakovich's fourth symphony*. Aldershot: Ashgate.
- Fantl, J. (2014). Knowledge How. In E. N. Zalta (ed), *The Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/archives/fall2014/entries/knowledge-how>. Last accessed July 10, 2015.
- Finkelstein, D. H. (2003). *Expression and the inner*. Cambridge, MA: Harvard University Press.
- Fleisher, L. (2016). The Inner Ear: an interview with Leon Fleisher. In de Assis, P. (ed), *Experimental Affinities in Music* (pp. 168-177). Ghent: Orpheus Institute, distributed by Leuven University Press.
- Fry, K. (2008). Elaboration, Counterpoint, Transgression: Music and the Role of the Aesthetic in the Criticism of Edward W. Said. *Paragraph*, 31(3), 265–280.
- Funk, M & Coeckelbergh, M. (2013). Is gesture knowledge? A philosophical approach to the epistemology of musical gestures. In H. de Preester (ed), *Moving Imagination. Explorations of gesture and inner movement* (pp. 113-131), Amsterdam: John Benjamins.
- Fux, J. J. F. (1971). *The Study of Counterpoint (Gradus ad Parnassum)*. A. Mann (trans). New York: Norton.
- Galantucci, B., Fowler, C. A., & Turvey, M. T. (2006). The motor theory of speech perception reviewed. *Psychonomic Bulletin & Review*, 13(3), 361–377.
- Gallagher, S. (2005). *How the Body Shapes the Mind*. Oxford: Clarendon Press.
- Ganguly, D., & Curthoys, N. (2007). *Edward Said: The Legacy of a Public Intellectual*. Melbourne: Melbourne University Press.
- Gazzola, V., Aziz-Zadeh, L., & Keysers, C. (2006). Empathy and the Somatotopic Auditory Mirror System in Humans. *Current Biology*, 16(18), 1824–1829.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.
- Ginn, R. J. (2007). *The Politics of Prayer in Early Modern Britain: Church and State in Seventeenth-century England*. London: Tauris Academic Studies.

- Gjerstad, Ø. (2013). Voices and identities: the polyphony of Tony Blair and Nicolas Sarkozy at the European Parliament. In K. Fløttum (ed), *Speaking of Europe; approaches to complexity in European political discourse* (pp. 111-134). Amsterdam: John Benjamins.
- Godowsky, L. (1935). Piano Music for the Left Hand. *The Musical Quarterly*, 21(3), 298–300.
- Godøy, R. I. (2003). Motor-Mimetic Music Cognition. *Leonardo*, 36(4), 317–319.
- Godøy, R. I. (2006). Gestural-Sonorous Objects: embodied extensions of Schaeffer's conceptual apparatus. *Organised Sound*, 11(2), 149–158.
- Godøy, R. I. (2008). Reflections on chunking in music. In A. Schneider (ed), *Systematic and Comparative Musicology* (pp. 117–131). Vienna: Peter Lang.
- Godøy, R. I. (2011a). Sound-action awareness in music. In E. Clarke & D. Clarke *Music and Consciousness* (pp. 231-243). Oxford: Oxford University Press.
- Godøy, R. I. (2012). Coarticulated gestural-sonic objects in music. *New Perspectives on Music and Gesture*, 67–83.
- Godøy, R. I. (2015). Ubiquitous Motor Cognition in Musical Experience: Open Peer Review of Jacques Launay's "Musical Sounds, Motor Resonance, and Detectable Agency". *Empirical Musicology Review* 10(1), 41- 45.
- Godøy, R. I., & Jørgensen, H. (2001). *Musical imagery*. Lisse, the Netherlands; Exton, PA: Swets & Zeitlinger Publishers.
- Godøy, R. I., & Leman, M. (2010). *Musical gestures sound, movement, and meaning*. New York: Routledge. Retrieved from <http://public.eblib.com/choice/publicfullrecord.aspx?p=465371>
- Godøy, R.I. (2011b). Coarticulated gestural-sonic objects in music. In A. Gritten & E. King (eds) *New perspectives on music and gesture* (pp. 66-82). Aldershot: Ashgate.
- Goehr, L. (1992). *The Imaginary Museum of Musical Works*. Oxford: Clarendon Press.
- Golandsky, E. (2003). *Virtuosity in a Box: The Taubman techniques*. DVD box set. Medusa, NY: Taubman Institute.
- Grady, J. (1997). Foundations of Meaning: primary metaphors and primary scenes. PhD Dissertation. University of California, Berkeley.
- Green, M. S. (2007). *Self-expression*. Oxford; New York: Clarendon Press; Oxford University Press.
- Gritten, A., & King, E. (eds) (2006). *Music and gesture*. Aldershot, England; Burlington, VT: Ashgate.

- Gritten, A., & University of Cambridge. (1999). *Stravinsky's voices*. Cambridge: University of Cambridge.
- Hammond, A. (2012). *Pierre Cochereau: Organist of Notre-Dame*. University Rochester Press.
- Hannula, M., Suoranta, J. & Vadén, T. (2005). *Artistic Research: theories, methods and practices*. Helsinki; Gothenberg: Academy of Fine Arts; University of Gothenburg/Art Monitor.
- Hanon, L. (1928). *The Virtuoso Pianist*. New York: Schirmer.
- Hardcastle, W. J., & Hewlett, N. (1999). *Coarticulation: theory, data, and techniques*. Cambridge, UK; New York, NY, USA: Cambridge University Press.
- Harshav, B. (2007). *The Polyphony of Jewish Culture*. Stanford University Press.
- Hatten, R. S. (2004). *Interpreting Musical Gestures, Topics, and Tropes: Mozart, Beethoven, Schubert*. Bloomington, IN: Indiana University Press.
- Hazeltine, E. (2005). Response–response compatibility during bimanual movements: Evidence for the conceptual coding of action. *Psychonomic Bulletin and Review* 12(4): 682-688.
- Hermans, C. (2003). When the body takes over. MA Thesis. Retrieved from <http://www.du.ahk.nl/people/carolien/pdf/Impro1.pdf>. Last accessed Oct. 21, 2015.
- Herrigel, E. (1953). *Zen in the art of archery*. New York, N.Y.: Pantheon Books.
- Heuer, H. (1995). Models for response–response compatibility: The effects of the relation between responses in a choice task. *Acta Psychologica*, 90, 315-332.
- Hibberd, K. P. G., & University of London. (2005). *Shostakovich and Bakhtin: a critical investigation*. London: University of London.
- Hirschkop, K. (1989) Dialogism as a challenge to literary criticism. In C. Norris (ed), *The Politics of Culture* (pp. 283-304). London: Lawrence and Wishart.
- Horowitz, J. (1982). *Arrau on Music and Performance*. Chelmsford, MA: Courier Corporation.
- Hull, S. L. (1985). *Strasberg's method as taught by Lorrie Hull: A practical guide for actors, teachers, and directors*. Oxford: Oxbow Books.
- Husserl, E. (1991). *On the Phenomenology of the Consciousness of Internal Time (1893–1917)*. J. B. Brough (trans). Springer Science & Business Media.
- Hutto, D. & Myin, E. (2013). *Radicalizing Enactivism: basic minds without content*. Cambridge, MA: MIT Press.
- Ihde, D. (2012). *Listening and Voice: Phenomenologies of Sound, Second Edition*. New York: State University of New York Press.

- Jabusch, H. (2006). Movement analysis in pianists. In E. Altenmüller, J. Kesselring, & M. Wiesendanger (eds), *Music, motor control and the Brain* (pp. 91-108). Oxford: Oxford University Press.
- Jaques-Dalcroze, E. (2007). *The Eurhythmic of Jaques-Dalcroze*. Rockville, MD: Wildside Press.
- Jeannerod, M. (2002). From action to interaction: An interview with Marc Jeannerod conducted by Shaun Gallagher. Retrieved from <http://www.isc.cnrs.fr/wp/wp01-4.htm>. Last accessed Feb. 20, 2016.
- Jerde, T., & Flanders, M. (2006). Hand movements and musical performance. In E. Altenmüller, J. Kesselring, & M. Wiesendanger (eds), *Music, motor control and the Brain* (pp. 79-91). Oxford: Oxford University Press.
- Johnson, M. (1990). *The Body in the Mind: The Bodily Basis Of Meaning, Imagination, And Reason*. Chicago: University of Chicago Press.
- Johnson, M. (2007). *The Meaning of the Body: aesthetics of human understanding*. Chicago: University of Chicago Press.
- Juzwik, M. (2004). Towards an Ethics of Answerability: reconsidering dialogism in sociocultural literacy research. *College Composition and Communication*, 55(3), 536–567.
- Kennan, K. (1998). *Counterpoint*. 4th Edition. Upper Saddle River, NJ: Prentice Hall.
- Kennerley, S., Diedrichsen, J., Hazeltine, E., Semjen, A., & Ivry, R. B. (2002). Callosotomy patients exhibit temporal uncoupling during continuous bimanual movements. *Nature Neuroscience* 5, 376-381.
- Keysers, C., Kohler, E., Umilt'a, M. A., Nanetti, L., Fogassi, L., Gallese, V. (2003). Audiovisual mirror neurons and action recognition. *Experimental Brain Research* 155(4), 628-636.
- Kholopova, V. (2000). *Muzyka kak vid iskusstva ("Music as Art")* St. Petersburg. Retrieved from <http://www.kholopova.ru/bibeng1.html#fn1>. Last accessed Feb. 21, 2016.
- Klee, P., & Spiller, J. (1961). *The Thinking Eye; the notebooks of Paul Klee*. New York: G. Wittenborn.
- Knight, M. (2012). Hutterite choral singing on the prairies: sounds of salvation. *International Conference for Traditional Polyphony, Tbilisi, Georgia*. Retrieved from [http://polyphony.ge/uploads/sixthsymposium/english/46.matthew\\_knight.eng.pdf](http://polyphony.ge/uploads/sixthsymposium/english/46.matthew_knight.eng.pdf). Last accessed Nov. 13, 2015.
- Koensler, A. (2015). *Israeli-Palestinian Activism: Shifting Paradigms*. Aldershot: Ashgate Publishing.

- Kohler E, Keysers C, Umiltà MA, Fogassi L, Gallese V, & Rizzolatti G. (2002). Hearing sounds, understanding actions: action representation in mirror neurons. *Science* 297(5582), 846–8.
- Korsyn, K. E. (1993). Brahms research and aesthetic ideology. *Music Analysis*, 12(1), 89–103.
- Korsyn, K. E. (1999). Beyond privileged contexts: intertextuality, influence and dialogue. In N. Cook & M. Everist (eds), *Rethinking Music* (pp. 55-72). Oxford: Oxford University Press.
- Kramer, L. (1995). *Classical Music and Postmodern Knowledge*. Berkely, CA: University of California Press.
- Lakoff, G., & Johnson, M. (1980). *Metaphors We Live By*. Chicago, IL: University of Chicago Press.
- Legrand, D. (2007). Pre-reflective self-consciousness: on being bodily in the world. *Janus Head*, 9(2), 493-519
- Legrand, D. & Ravn, S. (2009). Perceiving subjectivity in bodily movement: the case of dancers. *Phenomenology and the Cognitive Sciences* 8(3), 389-408.
- Lehrdal, F., & Jackendoff, R. S. (1983). *A Generative Theory of Tonal Music*. Cambridge, MA: MIT Press.
- Leitan, N., & Chaffey, L. (2014). Embodied cognition and its applications: a brief review. *Sensoria*, 10(1), 3–10.
- Leman, M. (2008). *Embodied Music Cognition and Mediation Technology*. Cambridge, MA: MIT Press.
- Leman, M. (2010). Music, gesture, and the formation of embodied meaning. In M. Leman & R. I. Godøy (eds) *Musical Gestures* (pp. 126-153). New York: Routledge.
- Leman, M. & Godøy, R. I. (2010). Why study musical gestures? In M. Leman & R. I. Godøy (eds) *Musical Gestures* (pp. 3-11). New York: Routledge.
- Lepage, J. & Théoret, H. (2007). The mirror neuron system: grasping others' actions from birth? *Developmental Science* 10(5): 513-523.
- Lorda, C. U., & Zabalbeascoa, P. (2012). *Spaces of Polyphony*. John Benjamins Publishing.
- Mackey, V. & Armstrong, J. (2002). *Just Play Naturally*. Duende Editions.
- MacRitchie, J. (2013). Inferring musical structure through bodily gestures. *Musicae Scientiae*, 17(1), 86-108.
- Magome, K. (2006). Edward Said's Counterpoint. In S. Nagy (ed), *Paradoxical Citizenship: Edward Said* (p. 298). Lanham, MD: Lexington Books.

- Matthay, T. (1912). *The Fore-arm Rotation Principle in Pianoforte Playing; its application and mastery*. Boston: The Boston Music Co. (Schirmer).
- Matyja J.R. (2015). The next step: Mirror neurons, music, and mechanistic explanation. *Frontiers in Psychology*, 6(APR).
- Matyja, J.R, & Schiavio, A. (2013). Enactive music cognition: Background and research themes. *Constructivist Foundations*, 8(3), 351–357.
- Mazzola, G. (2010). *Musical Performance: A Comprehensive Approach: Theory, Analytical Tools, and Case Studies*. Dordrecht: Springer.
- McDowell, J. (1984). Wittgenstein on following a rule. *Synthese*, 58, 325-364.
- McGuiness, A. (2013). Self-consciousness in Music Performance. In M. Clayton, D. Byron, L. Leante (eds) *Experience and Meaning in Music Performance* (pp. 108-134). Oxford: Oxford University Press.
- Mcgurk, H., & Macdonald, J. (1976). Hearing lips and seeing voices. *Nature*, 264(5588), 746–748.
- McKay, N. (2007). ‘One for all and all for one’ voicing in Stravinsky’s music theatre. *Journal of Music and Meaning*, 5(5). Retrieved from <http://www.musicandmeaning.net/issues/showArticle.php?artID=5.5>. Last accessed March 3, 2016.
- McKay, N. (2013). Stravinsky’s sideward glance: neoclassicism, dialogised structures and the reflected discourse of Bach. *Journal of Music and Meaning*, 12. Retrieved from <http://jmm12.musicandmeaning.net/#post0>. Last accessed March 3, 2016.
- Mechsner, F., Kerzel, D., Knoblich, G., & Prinz, W. (2001). Perceptual basis of bimanual coordination. *Nature*, 414, 69-73.
- Merleau-Ponty, M. (1962). *Phenomenology of perception*. C. Smith (trans). New York: Routledge.
- Merrick, F. (1960). *Practising the piano*. London: Barrie and Rockliff.
- Merritt, D. E. (2007). The editions of Alfred Cortot and E. Robert Schmitz revisited: Pedagogical perspectives on selected Chopin etudes. *ETD Collection for University of Nebraska - Lincoln*, 1–60.
- Milanovic, T. (2014). *Learning and teaching healthy piano technique: training as an instructor in the Taubman approach*. PhD Dissertation. Saarbrücken: Scholars’ Press.
- Mitchell, M. L. (2000). *Virtuosi: a Defense and a (sometimes erotic) Celebration*. Bloomington, IN: Indiana University Press.

- Molnar-Szakacs I, & Overy K. (2006). Music and mirror neurons: from motion to “e” motion. *Social Cognitive and Affective Neuroscience*, 1(3), 235–41.
- Morson, G. S., & Emerson, C. (1990). *Mikhail Bakhtin: Creation of a Prosaics*. Palo Alto, CA: Stanford University Press.
- Narmour, E. (1983). Some Major Theoretical Problems concerning the Concept of Hierarchy in the Analysis of Tonal Music. *Music Perception: An Interdisciplinary Journal*, 1(2), 129–199.
- Neuhaus, H. (1973). *The art of piano playing*. London: Barrie & Jenkins.
- Newlin, D. (1980). *Schoenberg Remembered: Diaries and Recollections (1958-76)*. New York: Pendragon Press.
- Newman, A. (1995). *Bach and the Baroque*. 2<sup>nd</sup> edition. New York: Pendragon Press.
- Nikolajeva, M. (1996). *Children’s Literature Comes of Age: Toward a New Aesthetic*. New York: Garland Publishing.
- Nöe, A. (2004). *Action in Perception*. Cambridge, MA: MIT Press.
- Norris, C. (1989). *Music and the politics of culture*. New York: St. Martin’s Press.
- Nuwer, R. (2015, July 20). Playing Mozart’s Piano Pieces as Mozart Did. *The New York Times*. Retrieved from <http://www.nytimes.com/2015/07/21/science/playing-mozart-piano-pieces-as-mozart-did.html>. Last accessed Dec. 10, 2015.
- Obhi, S. S. & Haggard, P. (2004). The relative effects of external spatial and motoric factors on the bimanual coordination of discrete movements. *Experimental Brain Research*, 154, 399–402.
- Ohriner, M. (2012). Grouping Hierarchy and Trajectories of Pacing. *Music Theory Online*, 18(1). Retrieved from <http://www.mtosmt.org/issues/mto.12.18.1/mto.12.18.1.ohriner.php>. Last accessed May 3, 2015.
- Ohtsuki, T. Changes in strength, speed and reaction time induced by simultaneous bilateral muscular activity. In Swinnen S.P., Heuer H., Massion J., Casaer P. (Eds.): *Interlimb Coordination: Neural, Dynamical and Cognitive Constraints*. San Diego, CA: Academic, 259–274.
- Ott, B. (1992). *Lisztian keyboard energy: an essay on the pianism of Franz Liszt*. Windham, D. (Trans.). Lewiston, N.Y.: E. Mellen Press.
- Overy, K., & Molnar-Szakacs, I. (2009). Being Together in Time: Musical Experience and the Mirror Neuron System. *Music Perception: An Interdisciplinary Journal*, 26(5), 489–504.

- Palmer, C. (1989). Mapping musical thought to musical performance. *Journal of Experimental Psychology: Human Perception and Performance* 15(2): 331-346
- Peace, J. (1993). *The complete pianist, a holistic approach for all levels: teaching of Abby Whiteside (1881-1956) in relation to the work of Jaques-Dalcroze (1865-1950)*. Liverpool: Castillon.
- Peñalba Acitores, A. (2011). Towards a theory of proprioception as a bodily basis for consciousness in music. In Clarke, E. and Clarke, D. (eds) *Music and Consciousness: Philosophical, Psychological, and Cultural Perspectives* (pp. 215-230). Oxford: Oxford University Press.
- Perianova, I. (2013). *The Polyphony of Food: Food through the Prism of Maslow's Pyramid*. Cambridge: Cambridge Scholars Publishing.
- Peters, M (1985). Performance of a rubato-like task: When two things cannot be done at the same time. *Music Perception: An interdisciplinary journal* 2(4): 471-482.
- Pierce, A. (2007). *Deepening Musical Performance through Movement: the theory and practice of embodied interpretation*. Bloomington, IN: Indiana University Press.
- Pinku, G. & Tzelgov, J. (2006) Consciousness of the self (COS) and explicit knowledge. *Consciousness and Cognition*, 15(4), 654-661.
- Polanyi, M. (1958). *Personal Knowledge*. Chicago, IL: University of Chicago Press.
- Poole, B. (2001). From phenomenology to dialogue. In K. Hirschkop & D. Shepherd (eds) *Bakhtin and cultural theory* (pp. 109-135). Manchester: Manchester University Press.
- Razumovskaya, M. (2014). Climbing the Summit of Knowledge: Heinrich Neuhaus' interpretation of Beethoven. *Sineris* 18. Retrieved from <http://www.sineris.es/neuhaus.pdf>. Last accessed Feb. 21, 2016.
- Repp, B. H. (1993). Music as motion: a synopsis of Alexander Truslit's (1938) 'Gestaltung und Bewegung in der Musik.' *Psychology of Music*, 21(1), 48-73.
- Revonsuo, A., Johanson, M., Wedlund, J. E., & Chaplin, J. (2000) The zombies among us: consciousness and automatic behaviour. In Y. Rossetti & A. Revonsuo (eds) *Beyond Dissociation: interaction between dissociated implicit and explicit processing* (pp. 331-351). Amsterdam: John Benjamins.
- Rink, J. (1990). Review of Wallace Berry *Musical structure and performance*. *Music Analysis*, 9(3), 319-39.
- Rink, J. (2002). Analysis and (or?) performance. In J. Rink (ed) *Musical Performance: a guide to understanding* (pp. 35-57). Cambridge: Cambridge University Press.
- Rink, J. (2004). The State of Play in Performance Studies. In J. Davidson. *The Music Practitioner* (pp. 37-51). Aldershot: Ashgate Publishing.

- Roesner, D. D. (2014). *Musicality in Theatre: Music as Model, Method and Metaphor in Theatre-Making*. Aldershot: Ashgate Publishing.
- Rosen, C. (1995). *The romantic generation*. Cambridge, MA: Harvard University Press.
- Rosen, C. (2001). *Critical Entertainments*. Cambridge, MA: Harvard University Press.
- Rosenbaum, D. A. (1991). *Human motor control*. San Diego: Academic Press.
- Said, E. W. (1993). *Culture and imperialism*. New York: Knopf: Distributed by Random House.
- Said, E. W. (1999). *Out of place: a memoir*. New York: Knopf.
- Said, E. W. (2008). *Music at the Limits*. New York: Columbia University Press.
- Sandor, G. (1981). *On Piano Playing: motion sound and expression*. New York: Schirmer Books.
- Schacher, J. (2014). Corporeality, Actions and Perceptions in Gestural Performance of Digital Music. *Proceedings of the Joint International Computer Music and Sound and Music Computing Conference, Athens, Greece*. Retrieved from [https://www.zhdk.ch/fileadmin/data\\_subsites/data\\_icst/Publikationen/2014\\_NIME\\_PBR\\_Schacher\\_Gestural.pdf](https://www.zhdk.ch/fileadmin/data_subsites/data_icst/Publikationen/2014_NIME_PBR_Schacher_Gestural.pdf). Last accessed Feb. 21, 2016.
- Schapiro, R. A. (2009). *Polyphonic Federalism*. Chicago, IL: University of Chicago Press.
- Schiavio, A., Menin, D., & Matyja, J. (2014). Music in the Flesh: Embodied Simulation in Musical Understanding. *Psychomusicology*, 24(4), 340–343.
- Schmitt, I. (2011). Introduction: Heterogeneity, Belonging and Learning in Schools. In Z. Bekerman & T. Geisen (eds) *International Handbook of Migration, Minorities and Education: Understanding Cultural and Social Differences in Processes of Learning* (pp. 321-329). Springer Science & Business Media.
- Schweitzer, A. (1911). *J. S. Bach*. E. Newman (trans). Retrieved from [https://archive.org/stream/jsbachvolume1002520mbp/jsbachvolume1002520mbp\\_djvu.txt](https://archive.org/stream/jsbachvolume1002520mbp/jsbachvolume1002520mbp_djvu.txt). Last accessed March 3, 2016.
- Scott, A. (2014). *Romanticizing Brahms: early recordings and the reconstruction of Brahmsian identity*. PhD Dissertation, Leiden University. Retrieved from <https://openaccess.leidenuniv.nl/handle/1887/29987>. Last accessed Nov. 3, 2015.
- Sheets-Johnstone, M. (2011). *The Primacy of Movement*. Amsterdam: John Benjamins.
- Shin, Y. K., Proctor, R. W., & Capaldi, E. J. (2010). A review of contemporary ideomotor theory. *Psychological Bulletin*, 136(6), 943–974.
- Shusterman, R. (2012). *Thinking Through the Body: essays in somaesthetics*. Cambridge: Cambridge University Press.

- Sinigaglia, C. & Rizzolatti, G. (2015). The space of mirrors. In P. Ferrari and G. Rizzolatti (eds) *New Frontiers in Mirror Neurons Research* (pp. 331-348). Oxford: Oxford University Press.
- Stam, G., & Ishino, M. (2011). *Integrating Gestures; the interdisciplinary nature of gesture*. Amsterdam: John Benjamins.
- Stanislavski, K. (1989). *An Actor Prepares*. New York: Routledge.
- Stanislavski, K. (1989). *Building a Character*. New York: Routledge.
- Stevenson, N. (2003). *Cultural Citizenship*. Maidenhead: Open University Press.
- Stewen, H. (2009). *The Straube Code*. Retrieved from <http://www.marcelpuntmusic.com/straubecode>. Last accessed Nov. 3, 2014.
- Sukhvinder S. Obhi, Melvyn A. Goodale (2005). Bimanual Interference in Rapid Discrete Movements Is Task Specific and Occurs at Multiple Levels of Processing. *Journal of Neurophysiology*, 94(3), 1861-1868.
- Swain, J. P. (2002). *Harmonic Rhythm: Analysis and Interpretation*. Oxford: Oxford University Press.
- Swinkin, J. (2007). Keyboard Fingering and Interpretation: a comparison of historical and modern approaches. *Performance Practice Review*, 12(1), 1-26.
- Taruskin, R. (2005). *The Oxford history of Western music*. Oxford: Oxford University Press.
- Telmissany, M., & Schwartz, S. T. (2010). *Counterpoints: Edward Said's Legacy*. Cambridge: Cambridge Scholars Publishing.
- Teranishi, M. (2008). *Polyphony in Fiction: A Stylistic Analysis of Middlemarch, Nostromo, and Herzog*. Bern: Peter Lang.
- Thelen, E., & Smith, L. B. (1994). *A dynamic systems approach to the development of cognition and action*. Cambridge, MA: MIT Press.
- Todd, N. (1985). A Model of Expressive Timing in Tonal Music. *Music Perception*, 3(1), 33-57.
- Todd, N. (1992). The Dynamic of Dynamics: A model of musical expression. *Journal of the Acoustic Society of America*, 91(6), 3540-3550.
- Trainor, L. J., Marie, C., Bruce, I. C., & Bidelman, G. M. (2014). Explaining the high voice superiority effect in polyphonic music: evidence from cortical evoked potentials and peripheral auditory models. *Hearing Research*, 308, 60-70.
- Trevarthen, C., Delafield-Butt, J., & Schögl, B. (2011). Psychobiology of musical gesture: innate rhythm, harmony and melody in movements of narration. In A. Gritten & E. King (eds) *New Perspectives on Music and Gesture* (pp. 11-43). Aldershot: Ashgate.

- Van Hecke, P. (2005). *Metaphor in the Hebrew Bible*. Wilsele, BE: Peeters Publishers.
- Varela, F., Thompson, E. & Rosch, E. (1991). *The Embodied Mind*. Cambridge, MA: MIT Press.
- Verbalis, J. (2012). *Natural Fingering: A Topographical Approach to Pianism*. Oxford: Oxford University Press.
- Viljanen, E. (2005). Boris Asaf'ev and the soviet musicology. Thesis. Retrieved from <https://helda.helsinki.fi/bitstream/handle/10138/19573/borisasa.pdf?sequence=2>. Last accessed March 2, 2016.
- Vineyard, M. (2007). *How you stand, how you move, how you live: learning the Alexander technique to explore your mind-body connection and achieve self-mastery*. New York: Marlowe & Co.
- Waldron, J. (1999). *Law and Disagreement*. Oxford: Clarendon Press.
- Wallgren, T. (2006). *Transformative Philosophy: Socrates, Wittgenstein, and the Democratic Spirit of Philosophy*. Lanham, MD: Lexington Books.
- Wanderley, M. M. (2002). Quantitative Analysis of Non-obvious Performer Gestures. *Lecture Notes in Computer Science*, (2298), 241–253.
- Wanderley, M., Vines, B., Middleton, N., McKay, C., & Hatch, W. (2005a). The Musical Significance of Clarinetists' Ancillary Gestures: An Exploration of the Field. *Journal of New Music Research*, 34(1), 97–113.
- Waugh, P. (2006). *Literary Theory and Criticism: An Oxford Guide*. Oxford: Oxford University Press.
- Weber, M., Martindale, D., Neuwirth, G., & Riedel, J. (1958). *The rational and social foundations of music*. Carbondale, IL: Southern Illinois University Press.
- Whiteside, A. (1997). *Abby Whiteside on piano playing*. Portland, OR: Amadeus Press.
- Whyman, R. (2013). *Stanislavski: The Basics*. New York: Routledge.
- Wieland, R., & Uhde, J. (2002). *Forndes Üben: Wege instrumentalen Lernens: über den Interpretieren und den Körper als Instrument der Musik*. Bärenreiter.
- Wilson, M. (2002). Six views of embodied cognition. *Psychonomic Bulletin & Review*, 9(4), 625–636.
- Wilson, R. A., & Foglia, L. (2011). Embodied Cognition. In E. N. Zalta (ed) *The Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/archives/fall2011/entries/embodied-cognition>. Last accessed Dec. 2, 2015.
- Windsor, L., & Clarke, E. (1997). Expressive timing and dynamics in real and artificial musical performances. *Music Perception*, 15, 127-152.

- Wittgenstein, L. (2009). *Philosophical Investigations*. P. Hacker & J. Schulte (trans and ed). Chichester: Wiley.
- Yearsley, D. (2002). *Bach and the Meanings of Counterpoint*. Cambridge: Cambridge University Press.
- Young, J. B. (1998). Intonatsiaa and the politics of expression. Presented to the World Piano Pedagogy Conference in Fort Worth. Retrieved from <http://www.criticalmass.johnbellyoung.com/intonatsiaa/>. Last accessed March 7, 2016.
- Zbikowski, L. M. (2002). *Conceptualizing music: cognitive structure, theory, and analysis*. Oxford: Oxford University Press.
- Zemtsovsky, I. (2002). Polyphony as a way of creating and thinking: the musical identity of Homo Polyphonicus. In J. Jordania & R. Tsurtssumia (eds) *The Proceeding of the First International Symposium on Traditional Polyphony (2002)*, Tbilisi. Retrieved from [https://www.academia.edu/2292055/polyphony\\_as\\_a\\_way\\_of\\_creating\\_and\\_thinking\\_the\\_musical\\_identity\\_of\\_homo\\_polyphonicus](https://www.academia.edu/2292055/polyphony_as_a_way_of_creating_and_thinking_the_musical_identity_of_homo_polyphonicus). Last accessed Feb. 21, 2016.
- Zhongwen, Q. (1997). Problems of Bakhtin's Theory about "Polyphony." *New Literary History*, 28(4), 779–790.