Music and leadership:
The choir conductor’s multimodal communication

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Running Head: The choir conductor’s multimodal communication

Abstract
This chapter views the choir conductor as the leader of a cooperative group, whose role is not simply to provide technical instruction, but also to motivate singers, provide feedback, express the pleasure of music. It assumes that every choir conductor pursues a specific plan of action and that his/her multimodal behaviour is aimed at fulfilling the goals in that plan. It proposes an annotation scheme for analyzing a conductor’s head, eyebrow, eye, mouth, trunk and hand actions in terms of their physical parameters, their literal and indirect meanings, and their goals within the conductor’s plan. The scheme allows to outline the body styles of different conductors, distinguishing them in terms of the goals fulfilled in their conduction.
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Keywords: Multimodal communication, annotation scheme, leader, Conductor, music performance

1. The musician’s body

Body behaviour in music performance has been studied in players and singers (Bresin & Battell 2000; Davidson 1994; Duranti & Burrell 2006; Caterina et al. 2004; Dahl & Friberg 2007; Dahl et al. 2009), and orchestra conductors (Poggi 2002; Boyes Braem & Braem 2004), for theoretical concern on the mechanisms of body movement, to enhance musicians’ technical skills, and to build devices for home conducting and virtual conductors (Friberg 2005).

Among musicians’ movements, some simply support the technical movements (King 2006), while others have a clear expressive or communicative function (Davis & Ashley 2005; Poggi
by displaying cognitive and emotional processes. A pianist for instance may display concentration while playing a difficult passage or bow on the piano to listen to the music produced, or express ‘felt’ and ‘enacted’ emotions. An ‘enacted emotion’ is one the musician must feel or pretend to feel, and express to impress it onto the music (Poggi 2006). It is ‘meaning oriented’ if he simulates or induces it in himself to convey the ‘meaning’ of that emotion through music (e.g., feeling sad to play a sad music more credibly); ‘movement oriented’ when the technical movements required by a music passage are contained in, or favored by, the expression of that emotion (e.g., she performs a frown, looking angry when playing a fortissimo, because the expression of anger mobilizes the energy required for a strong touch). Sometimes, though, a musician expresses really ‘felt’ emotions or sensations: those linked to the process of playing – positive like relaxation or flow, negative like tension or fear of mistaking – and those caused by the outcome – shame for a mistake, satisfaction for a beautiful sound.

In players not all body behaviours are communicative: some simply help motor processes; others are expressive movements, displaying mental states but not deliberately devoted to communicating anything to others.

A conductor’s movements, instead, are by definition communicative: the orchestra conductor uses gestures and all his body to communicate various types of information to players.

In this work I analyse the choir conductor’s behaviour in terms of the goals he must pursue in conducting, and based on them, the types of information a conductor conveys to singers. Then I present an observational study on the multimodal behaviour of a choir conductor to explore multimodality and social interaction in music performance.

2. Singing together: a cooperative plan of action

What are the body behaviours typical of a choir conductor? What should he do to have singers sing well?
To analyse a choir conductor’s behaviour I adopt a model of mind and social interaction in terms of goals and beliefs (Conte & Castelfranchi 1995; Poggi 2007a), according to which the life of every system (i.e., individual or collective) consists of pursuing goals, with a goal defined as any state that regulates, triggers and sustains action. This definition of goal subsumes several psychological notions (e.g., drives, instincts, motivations, interests, needs, intentions). All of these notions are types of goals. Often a goal cannot be achieved through a single action but needs to be pursued through a hierarchy of goals, a plan where each action aims at a goal, but this in turn may be aimed to a further goal (supergoal), with all actions aiming at the same end goal. Goals are pursued through internal and external resources. The former include the system’s beliefs and action capacities, the latter material resources, world conditions, and ‘adoption’ (i.e. help from others), that multiplies the systems’ power of achieving goals. When system S lacks resources for its goals, it depends on another system C’s adoption (i.e., C’s putting its resources to the service of S’s goals). Several kinds of adoption exist: exchange, altruism, norm compliance, cooperation. Cooperative adoption holds when C adopts S’s goal in order to another goal that both C and S have.

A choir is a cooperative system, where many individuals aim at the same goal. Its achievement depends on all individuals’ action, and each individual adopts the goal of another in order to achieve the shared goal. For example, Choir Conductor C, moving his hand, adopts the goal of singers “knowing when to start”; singer S1 looks at the Conductor to adopt his goal of gaining attention; singer S2 sings softly to let the theme sung by singer Sn be better heard, all actions aiming at making beautiful music, a common goal of Conductor C and Singers S1, S2, Sn.

Since the choir is a group, the conductor can be seen as the leader of the group; a Leader and the group components are highly interdependent in that a good leader’s actions fulfil the followers’ needs. For example, followers need (have the goal) to know what to do, where to go, what goals to pursue, and the leader proposes a mission, a vision, a goal to be pursued. Further, to feel better persons, followers need to identify themselves with the leader, to absorb his admirable capacities, and the good leader presents himself as a model to imitate. Followers need to feel that someone
takes care of them, and the leader is empathic. In other words, the leader’s actions and goals perfectly respond and correspond to the followers’ needs.

I hypothesize that the conductor’s behaviour in conducting pursues a plan where each action fulfils the singers’ cognitive and affective needs. In section 3, I illustrate the hierarchy of goals a conductor ideally pursues in conducting, making the hypothesis that this plan gets instantiated into the actions he performs and the types of information he conveys to singers. In section 4, I present an observational study on the multimodal behaviour of a choir conductor, showing how the communicative and non-communicative behaviours hypothesised are all present in real conducting.

3. The conductor’s plan

Figure 1 represents the conductor’s plan of action in conducting a choir.
In the round, I represent the Conductor’s goals, in italics the actions he performs to fulfil them.

The end goal (G1) is for singers to sing at their best, which is pursued through three sub-goals. An obvious sub-goal (G3) is that singers know how to sing (i.e., they have technical information about the sound to produce who is going to sing, when, what is the content expressed by the words to sing, what sound to produce, and how). The specific sound to produce implies various goals, corresponding to the parameters of music: the Conductor asks for a particular melody, rhythm, tempo, timbre, intensity, expression, or reminds the singers about aspects of the musical structure of the piece (e.g., coming back to the tonic or changing from minor to major). The Conductor’s gestures, face or body movements may point at one or another of these parameters.

While the singers’ need for technical information is quite obvious, a Conductor has further goals in interacting with the Choir, i.e., motivating singers (G2) and providing feedback (G4). The former (motivating people to do something) is a typical goal of any leader. Being motivated to do something means to attribute a high value to some goal, even at the expense of other goals: if one is more motivated to sing in a Choir than to play with friends at home, one may prefer to get out in a rainy night and give up a comfortable evening home. A participant in a group must be motivated to pursue the common goals of the group as opposed to other goals of his own. A good leader enhances motivation: group members should feel that the common goal has a higher value than their individual goals, hence be willing to pursue it with involvement and enthusiasm. Enthusiasm (Poggi 2007b) is a kind of anticipated joy felt when you think that the goal you are pursuing is beautiful, noble, important, and that you can achieve it, as evidenced by your achieving a subgoal of it. Take enthusiasm after a goal during a football game: the partial success: (1) increases the sense of self-efficacy, (2) enhances motivation by further increasing the value of the goal, and (3) increases strength, energy and concentration in goal pursuit.

In the choir job, if singers feel the music is beautiful and worth singing well, they will strive to do their best. This is why it is important for the conductor, as for any good leader, to motivate singers and induce the joy of singing. He can do so by making them notice how beautiful the music
being sung is through expressing his pleasure. Another way to induce motivation in the group members is that a leader can be an example for them, which entails making them feel he is like them, and doing himself what he is asking from them. So a good leader not only tells the followers how to do something, but performs the same actions together with them.

Once the singers are duly motivated and instructed on how to sing, the conductor’s last subgoal for their singing well is to give them feedback (G4) about how they are singing to evaluate their work. A negative evaluation – e.g., communicating they are singing too loud or too fast – is useful to their goal of knowing how to sing; a positive evaluation may both provide relevant information – e.g., “go on this way” – and, by enhancing self-efficacy, encourage (i.e., increases motivation).

4. An annotation scheme of the Choir Conductor’s communicative behaviour

My hypothesis is that the choir conductor’s body behaviours all aim to fulfil the goals and supergoals of the plan above. To test this hypothesis and see how the conductor’s plan is brought about in real conducting, I carried out an observational study on the multimodal communication of a choir conductor in concert: an execution of Rossini’s “Petite Messe Solennelle” by the Choir “Orazio Vecchi”, conducted by Roberto Anniballi (University Roma Tre, December 19th, 2006).

To analyse the conductor’s multimodal communication, I developed an annotation scheme aimed to capture the Conductor’s behaviours, their communicative and non-communicative goals, and their function in terms of the conductor’s plan of action illustrated above.
The scheme (Table 1) includes 11 lines and 13 columns. The first four lines contain, respectively: (1) number of the bar sung by the choir, (2) words sung, (3) notes sung by singers or played by the pianist, (4) time in the video.

Lines 5 through 11 concern the modalities whose signals are analysed. In columns, each group of three columns describes the multimodal behaviour – one modality on each line – performed by the conductor while the notes and words of a bar are being sung by singers. In each group, column 1 (BEHAVIOUR), in lines 5 through 11, respectively, describes the movements of the conductor’s trunk, head, eyebrows, eyes, mouth, left and right hand. Each behaviour is analyzed in terms of the parameters relevant for its modality. For example, for a gaze item, iris direction, eyelid openness, eyebrow position etc. are reported (Poggi, 2007), for a gesture, handshape, location, orientation and movement are described, and in some cases the gesture expressivity (e.g., amplitude, fluidity, velocity, tension, repetition) is also analyzed (Hartmann et al. 2002). In column 2 (GOAL/MEANING), each movement is analyzed as to its communicative or non-communicative goal: if considered a non-communicative action, its presumable purpose is written down; if assumed to be a communicative action, a verbal paraphrase of its meaning is provided. Moreover, also the

<table>
<thead>
<tr>
<th>Number</th>
<th>Words</th>
<th>Notes</th>
<th>Time in Video</th>
<th>Behaviour</th>
<th>Goal/Meaning</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Track</td>
<td>Raised right</td>
<td>I withdraw</td>
<td>Expected Emotional</td>
<td>Leaning forward</td>
<td>I imply you areContent</td>
</tr>
<tr>
<td>5</td>
<td>Head</td>
<td>Downward</td>
<td>I am suffering</td>
<td>Expected Emotional</td>
<td>Raised head forward</td>
<td>I address you areGod</td>
</tr>
<tr>
<td>5</td>
<td>Eyebrows</td>
<td>Open</td>
<td>I am sad</td>
<td>Expected Emotional</td>
<td>Opened</td>
<td>I move to over Musical phrase is over</td>
</tr>
<tr>
<td>5</td>
<td>Eyes</td>
<td>Closed</td>
<td>I move to over Musical phrase is over</td>
<td>Expected Emotional</td>
<td>Closed</td>
<td>I move to over Musical phrase is over</td>
</tr>
<tr>
<td>5</td>
<td>Mouth</td>
<td>Smile</td>
<td>I am thinking</td>
<td>Expected Emotional</td>
<td>Opened</td>
<td>Shape your mouth like</td>
</tr>
<tr>
<td>5</td>
<td>Left Hand</td>
<td>Cupped</td>
<td>I am thinking</td>
<td>Expected Emotional</td>
<td>Cupped hand pulls up in forming shape</td>
<td>I imply</td>
</tr>
<tr>
<td>5</td>
<td>Right Hand</td>
<td>Cupped</td>
<td>I am thinking</td>
<td>Expected Emotional</td>
<td>Cupped hand pulls up in forming shape</td>
<td>I imply</td>
</tr>
</tbody>
</table>
possible indirect meanings are taken into account. In fact, as previously argued (Poggi 2007), a communicative body behaviour may also have, beyond its literal meaning, a further meaning that is communicated indirectly through metaphor or other non-literal device. Thus in column 2, besides the apparent meaning of a smile, head movement, or gesture, an arrow sometimes points at its indirect meaning. Finally in column 3 (TYPE), the goal or meaning written in column 2 is classified in terms of the conductor’s plan proposed in Fig. 1.

Let us see the analysis of bars 63-65, when the soloist tenor sings “Domine Deus”. At time 11.16, bar 63, while he is singing “Domi-“, the beginning of the invocation ‘Lord God,’ the Conductor moves his trunk (line 5) backward rightward and his head (line 6) downward, his eyebrows (line 7) are oblique, an expression typical of sadness, and his eyes are closed and squeezed (line 8) like in the effort of coping with pain. Finally his smile (line 9), with lip corners down, expresses bitterness, and his hands cupped are in tension (lines 10, 11), expressing the enacted emotion of pain. As mentioned, a musician enacts an emotion to impress it into the music. In the conductor this device is recursive: he recites to be feeling some emotion, in order for the singers to feel it and express it through music, and finally transmit it to the audience. At bar 63, everything in the Conductor’s body enacts the sadness of someone who is imploring God.

At bar 64 (see the next three columns, time 11.18) he leans forward (line 5) and raises his head (6) as if imploring (trunk forward) while addressing God (raised head). Thus he is providing information about the content of the words the singer is singing, while again he is enacting sadness with oblique eyebrows (line 7) and closed squeezed eyes (line 8). A performative of imploration – again informing on the content of the words to sing – is also conveyed by his cupped hands with palms up in a grasping shape (10, 11). Simultaneously, he opens his mouth wide and round as if singing an “a” (9): a technical suggestion, reminding the tenor how he should produce the sound; but at the same time a typical feature of this specific Conductor, that characterizes him as opposed to others: his singing together with singers, to let them feel accompanied and tuned with him.
In the last part of bar 64 (next 3 columns, time 11.19), while his mouth (line 9) takes the shape of a narrow “a”, aimed at suggesting how to sing and singing together, the Conductor’s head and eyebrows come back to the default position, and the eyes are closed in a relaxed way (lines 6, 7, 8). All this facial behaviour as its literal meaning conveys an enacted state or relaxation, but this could in turn convey a metadiscursive meaning concerning the musical structure of the piece performed: “I relax, so you may relax because the musical phrase is over”. In fact, at bars 65 and 66 the piano solo intervenes. During this pause of the tenor, the Conductor conveys various meanings. With his cupped left hand palm up going up and down (line 10) he summons the pianist, communicating who is to play, but also sustains and incites him to play in a distinct way. With his half-closed eyes (line 8) he conveys a metacognitive meaning, “I am concentrating on this music.”

An orchestra conductor often displays concentration before giving a start (Poggi, 2002). That is, he shows concentration to be mirrored by players or singers so that they get prepared to the start too. Here, though, the Conductor seems to show concentration to have singers taste and feel the pleasure of music, like he does. This interpretation of the metacognitive display is made plausible by the context of other simultaneous expressive signals. His smile (line 9) expresses pleasure, and the rapid head-shake (6) can be seen as an intensifier of it (shaking head often conveys meanings like “much”, “many”, “highly”, “a lot”: Kendon 2002; Heylen 2005). Meanwhile, the raised eyebrows (line 7) express pride. These displays of pride and pleasure, along with the intensifier, are expressions of felt emotions, but might further aim at encouraging the performers through providing positive feedback; and the whole set of meanings can be seen as a multimodal discourse (Poggi 2007) conveying, “I am concentrating on listening to the music, please you do so too, I am happy and proud because the music is beautiful and we all are performing well.”

5. Conduction body style
Adopting this annotation scheme, two fragments were analysed from the concert above (respectively, one fragment of 1’12” and one of 0’26”, 1’38” in total), and all body signals with a communicative import were computed (Table 2).

Table 2: Anniballi’s multimodal communication

<table>
<thead>
<tr>
<th>Type of meaning</th>
<th>Literal</th>
<th>Indirect</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n.</td>
<td>n.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Who</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0.46</td>
</tr>
<tr>
<td>Melody</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>2.33</td>
</tr>
<tr>
<td>Intensity</td>
<td>18</td>
<td>18</td>
<td>36</td>
<td>16.82</td>
</tr>
<tr>
<td>Rhythm</td>
<td>17</td>
<td>17</td>
<td>34</td>
<td>7.94</td>
</tr>
<tr>
<td>Tempo</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>3.27</td>
</tr>
<tr>
<td>Expression</td>
<td>17</td>
<td>1</td>
<td>18</td>
<td>8.41</td>
</tr>
<tr>
<td>Timbre</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td>6.54</td>
</tr>
<tr>
<td>Musical Structure</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1.86</td>
</tr>
<tr>
<td>Content</td>
<td>15</td>
<td>3</td>
<td>18</td>
<td>8.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>Metacognitive</td>
<td>14</td>
<td>14</td>
<td>28</td>
<td>6.54</td>
</tr>
<tr>
<td>Enacted emotion</td>
<td>43</td>
<td>43</td>
<td>86</td>
<td>20.09</td>
</tr>
<tr>
<td>Felt emotion</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>0.67</td>
</tr>
<tr>
<td>Comm.pleasure</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>2.33</td>
</tr>
<tr>
<td>Positive feedback</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>5.14</td>
</tr>
<tr>
<td>Show how to sing</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>5.14</td>
</tr>
<tr>
<td>Sing together</td>
<td>7</td>
<td>7</td>
<td>14</td>
<td>3.27</td>
</tr>
<tr>
<td>TOTAL</td>
<td>176</td>
<td>38</td>
<td>214</td>
<td></td>
</tr>
</tbody>
</table>

The two meanings most frequently conveyed, either literally or indirectly, are enacted emotions – emotions expressed to have singers impress them to music (43) and intensity – reminding players of playing piano or forte (36). The next more frequent signals concern content and expression (18), rhythm (17), and timbre (14). Metacognitive information is conveyed with the same frequency as timbre (14), followed by show how to sing (11), tempo and sing together (7), melody and communicate pleasure (5), positive feedback and musical structure (4), and finally who is to sing (1). All in all, technical information is conveyed 120 times, non-technical 94 times.

Some meanings are communicated only in a direct way. Who is to play, melody, rhythm and tempo, enacted and felt emotions are never conveyed indirectly.
Out of the meanings conveyed indirectly, the most frequent is intensity, that is generally communicated either through metacognitive communication (twice) or, more often, through enacted emotions (16 times). For example, the Conductor mimics concentration, attention, caution to remind players to play piano; and mimics anger or determination to make them play loud. Enacted emotions, that are only present at the level of direct communication, in 23 cases have the role of conveying indirect meanings. Specifically, 16 convey intensity, 3 musical structure, 3 content and 1 expression. For example, respectively, by mimicking anger the Conductor asks musicians to play loud, by showing inspired to play softly, by showing relaxed he conveys that a musical phrase is over, by expressing sorrow the performative of imploration, by showing determination with gaze fixed downward, he asks for a determined expression.

Such an analysis of a conductor’s multimodal behaviour gives us a tool to characterise different body styles of conduction.

The particular Conductor observed here shows very characterizing peculiarities. He produces a high number of body signals per time unit, and a higher amount of signals of enacted emotion. He also continuously sings together with singers, and finally often provides positive feedback, expresses felt emotions and communicates pleasure.

This pattern of open and enthusiastic communication is completely consistent with his behaviour in other contexts. His empathic attitude, that leads him to continuously share the singers’ job with full participation, is also clear from his behaviour before and outside the performance. For example, when people come in to hear the rehearsal he warmly welcomes any new person, showing a sincere pleasure of meeting together. Furthermore, in his everyday work as a music teacher in Grammar School, he is well known as one who inspires enthusiasm of making music in all children.

Coming back to his behaviour as a conductor, our multimodal analysis definitely credits him the look of a charismatic leader, particularly keen to encourage and motivate singers. Moreover, the whole pattern of his multimodal behaviour strictly corresponds to the hierarchy of goals of the choir
conductor presented above, in that all the behaviours predicted are actually represented in his conducting.

6. Conclusion

There are many things a choir conductor must do during performance, for the choir to perform well, including much more than simply beating time, giving the starts or indicating piano and forte. The Conductor must encourage, motivate, explicate how to sing, provide feedback, accompany the singers, and let them feel and enjoy the music they are singing. These goals of conduction may be fulfilled in different ways, both in a quantitative and qualitative sense, by different conductors. I have analysed some fragments of a concert by an annotation scheme of the choir conductor’s multimodal behaviour. This tool allows us to characterise the idiosyncratic body style of each conductor, and to see which of those goals are more often or more deeply fulfilled by each conductor. In future works the scheme could be applied to the analysis of other choir conductors to see how different conducting body styles relate to different variables such as conductor’s personality, social situation (rehearsal vs. concert vs. music class), and type of music (e.g., jam-session vs. renaissance madrigals).

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References


