Enacting a Jazz Beat: Temporality in Sonic Environment and Symbolic Communication

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What does it mean to enact a jazz beat as a creative performer? This article offers a critical reading of Iyer's much-cited theory on rhythmic enaction. We locate the sonic environment approach *in Iyer's theory, and criticize him for advancing a one-to-one relationship between everyday perception and full-fledged aural competence of jazz musicians, and for comparing the latter with non-symbolic behaviour of non-human organisms. As an alternative, we suggest a Merleau-Ponty-inspired concept of rhythmic enaction, which we call the* enactive communicative approach. *Key to this approach is the fact that jazz musicians play by ear, and that the beat emerges because of reciprocal, real-time aural communication. From this perspective, we outline the temporality of a jazz beat as a holistic and dialectical temporal structure. Throughout the discussions, we use John Coltrane's 'Trane's Slo Blues' as a point of reference.*

1. Introduction

What does it mean to enact a jazz beat as a creative performer? Let us listen to the first 45 seconds of John Coltrane's 'Trane's Slo Blues' (1961).[1] Bass (Earl May) and drums (Art Taylor) set out a steady beat, unfolding the harmonic progression of a blues tune. Then, after one chorus (0:21), Coltrane's saxophone comes in *way back* on the beat. Coltrane's initiative transforms the beat completely. Everything bounces off differently.

Coltrane's beat is exemplary. Apart from the fact that this major name in jazz history created novel ways of playing the saxophone, innovative ways of using the Western tonal language and unprecedented idiomatic jazz sounds, the beat on 'Trane's Slo Blues' exemplifies something typical to the rhythmic organization of jazz music, regardless of idiom. Although music associated with jazz can swing or groove in very different manners (Roholt, 2014), Coltrane's music demonstrates how a specific jazz beat unfolds as an auditory, temporal, and plastic gestalt between the players: an elliptical perceptual force around which the musicians negotiate (Berliner, 1994, p. 151). How should phenomenological reflection describe such a phenomenon? How can we best make theoretical sense of Coltrane's example?

With Coltrane's beat and musical tradition as points of reference, the purpose of this article is to investigate the *structure of temporality* of jazz rhythm through the lens of a

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Merleau-Ponty-inspired (2011, 2012) concept of the enactive and communicative aspects of music. We call this the *enactive communicative approach* (ECA). To get there, we will engage critically with an approach that is popular in contemporary studies on musical behaviour, which Solli, Aksdal and Inderberg (2021) have labeled the *sonic environment approach* (SEA).[2] Proponents of the SEA describe musical performance as the enactment of a sonic environment (Iyer, 2002, 2004a, 2004b, 2014; Reybrouck, 2005; Matyja and Schiavio, 2013; Schiavio and Høffding, 2015; Schiavio et al., 2017; Lesaffre et al., 2019). Our critical encounter with the SEA will focus on Vijay Iyer's much-cited theory. Pianist and theorist Iyer not only represents the approach in exemplary manners; he is also one of the pioneers in applying the enactive paradigm developed in the research on embodied cognition on musical phenomena. While we acknowledge that there are important truths in Iyer's theory, we will question fundamental premises in, and consequences of, his SEA.

Key to our analysis will be the transition between what we call mode 1 (M1) and mode 2 (M2). M1 pertains to general traits of perception, such as the fact that *all* life goes on in an environment—or, as Dewey (1998) rightly pinpoints, 'not merely *in* [the environment] but because of it, through interaction with it. No creature lives merely under its skin' (p. 397, our emphasis). M1 also designates the more specific *human* ways of inhabiting the environment, as described by Merleau-Ponty: 'The human body, along with its habits that outline a human environment around itself, is crossed by a movement toward the world itself. … [Human life] draws this power from its primordial attachment to the world itself' (2012, p. 341). M2, in the next step, designates behavioural traits belonging to high-skilled *musical* perception and cognition, currently exemplified by Coltrane and his peers. In other words, M2 pertains to a musical practice instituted in the African American tradition, called jazz, executed collectively and individually by the Coltrane trio. In this framework, *other* forms of art or high-skilled human activities would amount to other M2 forms, with their medium-specific characteristics. It falls outside the scope of the current article to make these distinctions.

As we will try to demonstrate (Section 2), Iyer advances a *one-to-one* relationship between M1 and M2, identifying the latter with the former. He imports behavioural traits first suggested in contexts of M1 directly into analysis of musical perception (M2), in effect also forcing all embodied activities into the same foundational shape. By contrast, our ECA will suggest a *transformative* relation between M1 and M2 (Section 3). Here, the musical activity is no direct extension of what goes on in everyday perception but implies instead a form of artistic sublimation of M1. In M2, something is *understood*, as Gadamer (2004) would say: something in the vital domain of everyday perception is taken up—*Aufgehoben*—and stands out anew, cut loose from the historical events that led to its emergence. Gadamer would refer to Coltrane's beat as *Gebilde* (2004, p. 110 ff); we elaborate on the traits in Merleau-Pontian terms of symbolic behaviour and structures of temporality.[3]

2 SEA is not a position in its own right, but rather a tendency in or shortcoming of a certain strand of contemporary approaches to musical cognition.

3 Merleau-Ponty's and Gadamer's philosophies are compatible enough for the current purpose, but not fully overlapping, see Solli, 2017.

The difference between Iyer's SEA and our ECA implies distinct conceptions of the temporal structure of a beat like the one we hear on Coltrane's record. Let's see why.

2. Iyer's SEA and Some of its Limitations

Iyer's theory is rich in descriptive nuances, most of which we must leave unvisited. This section focuses on the key traits in Iyer's SEA as well as some problematic consequences of it, gradually drawing out the positive aspects of the ECA (Subsections 2a and b). Two steps in Iyer's theory attract our current interest.

First, Iyer's studies of musical behaviour are situated within the growing field of enactive and embodied approaches to the mind (Iyer, 2002, p. 388). These approaches conceive of cognition and perception as constituted in embodied interaction with one's surroundings, and reject representationalist and intellectualist accounts that posit 'mind-internal' representations or symbols as required mediators between mind and world.[4]

Invoking traits of what we call M1 by citing Varela, Thompson, and Rosch (1991), Iyer (2002, p. 389) firmly situates musical perception in the nondualist framework of embodied cognition, invoking what he calls shared mechanisms for low-level control of embodied action and higher-level cognition. Iyer's goal is to indicate how feedback mechanisms of general sensory and motor skills enable and facilitate musical perception, just like any other form of cognitive-perceptual activity: 'Cognition depends upon experiences based in having a body with sensorimotor capacities; these capacities are embedded in an encompassing biological, psychological, and cultural context' (Iyer, 2002, p. 389). Sensory processes associated with perception and motor processes are viewed as co-extensive and fundamentally inseparable. They are 'mutually informative, and structured so as to ground our conceptual systems' (Iyer, 2002, p. 389). So construed, 'perception is understood as perceptually guided action. We explore our environments with our bodies and our senses, learning to correlate multisensory input with our bodily experience' (Iyer, 2002, p. 389).

Second, when Iyer explicitly approaches what we call M2, he characterizes musical perception and cognition as 'the real-time interaction with the structure of one's environment' (Iyer, 2004b, p. 164). The musical activity is identified as a form of active,

4 While Iyer situates his works in the general field of 'embodied or situated cognition', which 'treats cognition as an activity that is structured by the body situated in its environment' (2002, pp. 388–389), many of our points will be more specifically connected to the *enactivist* strand of the embodied cognition movement. Here 'enactivism' refers primarily to the original, now sometimes (misleadingly, according to Thompson (2018)) called, 'autopoietic' variety, which was initiated by *The embodied mind* (Varela et al., 1991) and is distinguished, for example, by its commitment to the deep mind-life continuity thesis and its strong connection to the phenomenological tradition of philosophy. Some distinguished works within this enactivist school include Thompson (2007), Colombetti (2014), Di Paolo, Buhrmann, and Barandiaran (2017) and Gallagher (2017a). We specify this because 'enactivism' lately has come to denote a diverse group of positions. For instance, it has become common to distinguish between 'autopoietic', 'sensorimotor', and 'radical' enactivism (Hutto and Myin, 2013; Ward, Silverman, and Villalobos, 2017). Although they are united in their commitment to understand cognition and perception in terms of embodied activity, there are also important disagreements between these positions, centred, for example, on the significance of *life* and *meaning* for mindedness.

perceptual exploration of the improviser's 'acoustic, musical-formal, cultural, embodied and situated environment' (Iyer, 2004b, p. 165). In other words, music 'as the sound of human bodies in motion' (Iyer, 2014, p. 3) not only depends on the physical constraints and possibilities of both the sensorimotor apparatus of the organism and its environment, but is itself a sonic exploration of an environment. Thus, Iyer argues that rhythm perception and production involve complex, whole-body experiences, and that much of the musical structure found in rhythm-based music incorporates an awareness of the embodied, situated role of the participant.

To develop the perspective on M2 exploration, Iyer draws upon comparisons with both toddlers and non-human animals. Held and Hein's (1958) experiments on kittens motivate his view of improvisation as embodied exploration (Iyer, 2002, pp. 389–390). Iyer is not alone in doing so. Other researchers committed to the SEA often point to the explorative behaviour of non-human organisms and/or human infants to illustrate their analyses. If only a bit more ambiguously, Høffding and Schiavio compare expert musicians' activities of 'exploring and producing a satisfying and meaningful musical performance' to bacteria's processes of 'making sense' of their environment by 'differentiat[ing] between encounters that are good or bad vis-a-vis their biological norms' (2019, p. 4). In the same article, they identify three kinds of musical, explorative expertise—musico-technical, interactive, and mental—displayed by expert musicians, and argue that 'these replicate—albeit in a much more sophisticated form—the basic dual form [of self- and niche-exploration] that we have seen in the infant's case' (Høffding and Schiavio, 2019, p. 12).

Now, based on what we have seen, it makes sense to say that behavioural traits of M1 *ground* the abilities distinctive of M2 in Iyer's and Høffding and Schiavio's theories. M1 enables M2. By itself, we have no problem with this part of the SEA. We also agree that *at a certain level of abstraction*, M2 can be likened to organizational structures essential to all life. Indeed, we applaud the initiatives that have given attention to enactive aspects of musical perception. Finally, we are fully in line with Iyer's and Høffding and Schiavio's anti-intellectualist grounding of perception and cognition in the activities of living bodies that define enactive approaches. What we do have problems with, however, is how the SEA proponents seem to imply a one-to-one relationship between M1 and M2. The two modes seem to resemble each other to the extent that the only difference to be found between them is of *degrees* in complexity and skill. In our view, this approach is in danger of overlooking the transformative and genuinely original structures belonging to M2. By forcing all embodied activities into the same foundational shape, it throws out the distinguished artistic and human-communicative traits of the enactive phenomenon.

2.1. Symbolic Behaviour

Fortunately, for those of us who are dissatisfied with the conceptual models suggested by the SEA proponents, a critical perspective appears inside the same enactive tradition that Iyer draws upon. In his first (and often ignored) book, Merleau-Ponty outlines three forms of behaviour: *syncretic*, *amovable*, and *symbolic* (2011, pp. 104–124; see also Toadvine, 2009, pp. 25–37). The sequence systematizes behaviour in an accumulative and differentiated order. Starting at the 'low' level of instinctive life (syncretic), it ultimately leads to the

symbolic forms of human behaviour. Although the syncretic and amovable forms of behaviour are shared by all living beings (humans included), the symbolic form is restricted to human life. Unlike the other forms, symbolic behaviour implies the ability to perceive *something as something*; to perceive multiple human perspectives *latent in that very something*; and to do so *in accordance with or against* how other people perceive the same thing, in an almost unlimited dialectic of actual and possible perspectives. In Thompson's paraphrasing of Merleau-Ponty (2011):

> Symbols imply the mental ability to grasp something as an invariant under a diversity of aspects and perspectives. Thus symbols imply the ability to grasp something as an *object*, in the phenomenological sense of something that remains invariant through perspectival variation and is graspable for the subject and also available for other subjects. (Thompson, 2007, p. 76)

For Merleau-Ponty, the multiple perspectives latent in objects and the availability for other subjects imply a crucial form of human liberation:

> In making possible all substitutions of points of view, [symbolic behavior] liberates the 'stimuli' from the here-and-now relations in which my point of view involves them and from the functional values which the needs of the species, defined once and for all, assign to them. (Merleau-Ponty, 2011, p. 122)

The reader might be confused by our affirmative return to symbols. Didn't we just endorse the enactivist's anti-intellectualism? Yes. It is thus important to emphasize that symbolic behaviour currently is radically distinct from the disembodied, intellectual symbolic manipulation that characterizes the classical cognitivist conception of the mind (e.g. Pylyshyn, 1984). In the Merleau-Pontian framework, symbolic forms of behaviour are embodied and activity-based *through and through*. They do *not* depend on the reflective activities of a disengaged intellect. They do, however, operate at a level of organization that seems to be unique to the human form of life, bringing about and interacting with a field of valences qualitatively distinct from the environments of bacteria and other non-human organisms. In other words, from this perspective, when Merleau-Ponty (2012, p. 341) writes that the habitual human body outlines a human environment around itself, he implies a distinction between human and non-human behaviour. (This point is often missed in the contemporary readings of Merleau-Ponty. But let's not dwell on exegetic matters.)

While it might be controversial to call upon qualitative differences between human and non-human behaviour, Gadamer agrees: 'Unlike all other living creatures, man's relationship to the world is characterized by *freedom from environment* [*Umweltfreihet*]' (2004, p. 441, our emphasis). Fully in line with Merleau-Ponty's liberation perspective, Gadamer's *Umweltfreihet* designates the human ways of inhabiting the world, or indeed the ability to have a world, or *Welt*. For Gadamer, *Welt* means all the human institutions that surround us, from the first evolution of language, building of shelters and ploughing of the earth to the formation of knowledge, laws, and ideas of human freedom.

More recently, and with more empirical facts backing the position, Merleau-Ponty's perspective is also supported by neuroanthropologist Deacon (1997), developmental and comparative psychologist Tomasello (2003, 2010), and enactivist and cognitive scientist Di

Paolo (2009). According to the latter, the cognitive behaviour of human and non-human organisms is similar in the sense that it is always a case of 'identity-generation' (Di Paolo, 2009, p. 16) relative to an environment defined by the interests of this identity (more precisely, this is a process of co-definition of agent and environment). However, the *ways in which* identities are generated have undergone radical transformations and differentiations through the evolution of life, leading to 'authentic births of new lifeforms' (Di Paolo, 2009, p. 18).[5] Although Di Paolo does not use the term 'symbolic', he points to the importance of intersubjectivity for the development of a human identity, claiming that 'the human cognitive self is … co-determined with the other' (2009, p. 19), which, as we just noted with Thompson, is an essential factor of symbolic forms of behaviour.

To illustrate the sonorous result of elaborate and complex symbolic behaviour, we can listen to 'Trane's Slo' Blues' once more. The entrance of Coltrane's saxophone is symbolic behaviour par excellence: Coltrane perceived latent possibilities in the beat first established by his peers. And May and Taylor immediately perceived the latencies in Coltrane's initiative, ready to enact them from one moment to the next. Philosophically, the beat harbours a variety of structures latent in itself. The beat is 'self-reflective' in the sense that the group's behaviour 'folds back' onto itself. The music does not have one signification; rather, it *is* itself signification, as Merleau-Ponty (2011, p. 122) would say. Below, we will outline the intersubjective dimension hereby implied in terms of *joint musical attention*.

Iyer, as far as we know, does not invoke the Merleau-Pontian concepts of syncretic, amovable, and symbolic behaviour. Yet it seems reasonable to say that he presupposes the implications of Merleau-Ponty's ideas. That is, the low-level basis described by Iyer (M1) amounts to Merleau-Ponty's syncretic and amovable structures of behaviour, whereas the performance variations creating the attentional give-and-take of the different moments of musical interaction (Iyer, 2002, p. 398) (M2) seem to presuppose the mental ability to grasp something as an invariant under a diversity of aspects and perspectives.

Moreover, from the perspective of Merleau-Ponty's analysis, we can, again, agree with many of Iyer's key claims and commitments. For example, we agree that musical perception should be conceived as a kind of explorative behaviour, and that there is a continuum (rather than a 'clean break') between M1 and M2. Conceived as symbolic behaviour, M2 would lack substance without the constraints and possibilities of the syncretic and amovable forms. Further, still in line with Iyer, it would be incorrect to conceive of M2 as a 'higher' functionality, placed on top of 'lower' bodily functionalities. Symbolic behaviour is a behavioural trait affecting everything from largely non-conscious brain functioning to heart rate, proprioception, self-conception, and cultural identity. For the same reason, Iyer is right when he acknowledges sociocultural aspects as an intrinsic part of the

5 As an illustration, consider Hans Jonas' observation that 'the feeling animal strives to preserve itself as feeling, not just a metabolizing entity, i.e., it strives to continue the very activity of feeling: the perceiving animal strives to preserve itself as a perceiving entity—and so on' (1966, p. 106; quoted in Di Paolo, 2009, p. 17). The feeling and perceiving animal engages in other modes of mediation with its environment than organisms incapable of motility and perception do, and has an interest in maintaining this very identity, not just its metabolic existence. Similarly, human beings have a specific way of enactively 'generating' ourselves as cognitive agents. For a discussion of Hans Jonas' role in enactivism, see Hverven and Netland (2021).

embodied situation. Symbolic behaviour both enables and unfolds in the human ability to create use-objects or objects with a culturally constituted meaning, as well as language, music, culture, and history. From Merleau-Ponty's perspective, these features permeate bodily conduct as a whole. Finally, the concept of symbolic behaviour initially sits well with the evaluations of embodied perception as spontaneous and noncognitive. Symbolic behaviour does *not* equal cognitive reflection in the intentional form of 'I think that …'. While cognitive reflection presupposes symbolic behaviour, the same power can just as potently embed itself in the spontaneous and pre-reflective awareness associated with embodied intentionality (Merleau-Ponty, 2012).

Notwithstanding these agreements, Iyer's theory falls short of a proper grasp of musical cognition in being committed to a one-to-one relation between M1 and M2. One signal of the problem emerges in the comparison of high-skilled musical behaviour with animals and toddlers. From Merleau-Ponty's perspective, it is not just an empirical fact that kittens and bacteria lack symbolic behaviour, and that toddlers have not developed this capacity in full. Toddlers have *proto*-symbolic powers (Trevarthen and Hubley, 1978; Trevarthen, 1987; Merleau-Ponty, 2011), and while these powers are important enough as a hermeneutical precondition for musical expertise, they cannot be directly compared to the full-fledged competences of musicians. Construed with Merleau-Ponty, M1 and M2 are *principally* distinct. It is both *possible* and *necessary* to classify behaviour 'according to whether the structure in behavior is submerged in the content or, on the contrary, emerges from it to become, at the limit, the proper theme of activity' (Merleau-Ponty, 2011, p. 103). From his perspective, to be fully submerged in an ongoing project of exploring the environment in the sense of, say, bacteria is to be locked up to the a priori spectre of possible behaviour in *another sense* than a kitten is. And both are distinct from processes wherein a human being considers their behavioural response to a situation—a fortiori if musical expertise is in question. See Merleau-Ponty (2011, pp. 120–121), where he uses the example of an improvising organ player.

Read polemically, with Merleau-Ponty, it would be possible to demonstrate how both Iyer and Høffding and Schiavio (2019) risk committing one to a Rylean category mistake when comparing full-fledged, self-reflective competence of symbolic musical behaviour with the explorative activities of bacteria or kittens. The comparison is on the verge of presenting something belonging to a particular category *as if* it belonged to another category. However, we will now turn to some other interconnected limitations of Iyer's view.

2.2. *Aural Communication and Temporal Orders*

Iyer (2002, 2004b) frequently calls upon the knowledge embedded in the rhythmic sensitivity developed in the African American tradition, exemplified with James Brown, Thelonious Monk, Cecil Taylor, and Coltrane. What seems to be lacking in this context, however, is a recognition of the significance that the examples he invokes are taken from the heart of an oral and aural-communicative tradition.

Allow us to elaborate. Jazz musicians generally agree that listening is critical. Jazz musicians play *by ear*, and the facility to do so is considered fundamental. It is the regulative

ideal of the informal jazz institution, so to speak. Jazz music is ear music, as Berliner (1994, p. 92) pinpoints. Coltrane's music is no exception, of course. Coltrane preferred to learn by ear and is renowned not primarily for his supreme technical abilities but for his strong aural-musical facilities (Woideck, 2000). He had an extraordinarily strong inner ear, as reported by a peer (Thomas, 1976, p. 54)—a sensitive and creative ear for rhythmic and tonal nuances unfolding in the music. As exemplified on 'Trane's Slo Blues', Coltrane *heard* novel possibilities in the momentary music. The same can be said of Monk, Taylor, and Brown. Although the latter is no jazz musician, Brown certainly is a master of rhythmic communication. (For a phenomenological analysis of how aural-communicative abilities are constructed, see Solli, Aksdal and Inderberg, 2021; 2022.)

Their aural abilities are not accidental. The African American tradition is an *oral* and *aural* tradition (Sidran, 1981; Solli, 2021; Jones, 2002; Prouty, 2006). Centuries before the diaspora, African cultures developed rich practices in storing and transmitting knowledge in music, storytelling, and the spoken word. Music and language were not separated as they typically are in modern Western societies, but merged (Chernoff, 1979; Arom, 1991; Maultsby, 2000). Rhythmic *ways* of making music and *ways* of talking typically blend in ways hearable in early blues, scat singing in jazz, or in rap music (Monson, 1996; White and White, 2005; Burnim and Maultsby, 2014).

Against this background, Coltrane's beat emerged in a culture with a well-established understanding of how to manipulate rhythmically a wide register of sounds in verbal and musical communication. The rhythmic sensitivity exemplified by Coltrane (and Brown, Monk, and Taylor) is not 'just' a skill shared by the subjects. It literally is a *language*: a *musical language*. The beat is an intersubjective *means* of real-time, aural communication. Merleau-Pontian put, the beat is a symbolic structure embodying and transforming the aural-communicative learning developed over centuries. From this perspective, the music cannot reasonably be called *environment*. It implies instead what Gadamer just called *Umweltfreihet*. 'Man's freedom in relation to the environment is the reason for his free capacity for speech and also for the historical multiplicity of human speech in relation to the one world' (Gadamer, 2004, p. 441). The music is a full-blown accomplishment of the fundamental human freedom to articulate the world in ever different ways. The fact that Coltrane's music has symbolized freedom in a world of racist oppression (Brown, 2010) adds a double meaning. Construed with Merleau-Ponty and Gadamer, the freedom is not just a conventional side of the music, analogous to how a flag on a hill can symbolize the identity and revolt of a group. Rather, the musical organization literally embodies the vital spark of human freedom. The aural-communicative musical unfoldment *is* an accomplishment of free human conduct in a universal sense. (Isn't this the reason why Coltrane's music continues to inspire people all over the globe, in ever new historical and cultural contexts? We believe it is.)

Iyer, by contrast, does not consider these perspectives of the aural tradition. While he calls upon the rhythmic powers of the aural-communicative tradition, he neither describes the tradition *as* an aural-communicative tradition, nor elaborates on the consequences of invoking this kind of musical capacity. Most notably, Iyer leaves unvisited the concept of rhythmic music as a language. By insisting on the idea that music is a sonic environment, Iyer focuses on musical perception as 'sound of human bodies in motion' (2014, p. 3), and on the dialectic between intra- and extra-bodily constraints and possibilities.

And curiously, Iyer's choice of leaving out the communicative dimension is reflected in his way of analysing rhythm. In studying the temporal organization of music, Iyer (2004b) invokes Smither's (1996) insight that music is an activity that happens *in time* rather than *over time*. Put otherwise, musical unfoldment is 'process-oriented' rather than 'product-oriented' (Iyer, 2004b, p. 160). In contrast to product-oriented activities, the particular pace and temporal extension of a piece of music is an essential feature of *what the music is*. Any changes in pace and temporal extension equal changes in the total *sense* of the musical expression. 'In-time processes are *embedded* in time; not only does the time taken matter, but in fact it contributes to the overall structure' (Iyer, 2004b, p. 160, emphasis in original).

In one sense, Iyer's rhythm qua in-time process seems to harbour an implicit intersubjective dimension. Music constitutes *shared time*: 'The experience of music requires the listener's "co-performance" within a shared temporal domain' (Iyer, 2004b, p. 161). According to Iyer, the shared temporal domains can be understood as original time invariants generated by 'the performance situation itself' (Iyer, 2004b, p. 161). The music *takes its time*, so to speak. However, Iyer focuses not on how rhythm is a means of communication; rather, he juxtaposes the in-time process of music with *walking* (Iyer, 2004b, pp. 160–161). Simultaneously, rather than pursuing how the temporal organization emerges *in-between* subjects listening to each other in joint musical attention, Iyer focuses on how the temporal order emerges *in* the individual enactive subjects. That is, he focuses on how the competent players and listeners possess more or less the same embodied skills.

> We *entrain* to a pulse based on the echoic storage of the previous pulse and some matched internal oscillator periodicity; we *feel* the relationships among strong and weak beats (accentual meter); we *count* times between phrases or bars (metric grouping); and we *recognize* subpulse rhythms qualitatively. (Iyer, 2002, p. 396, emphasis in original)

Iyer's focus comes with profound implications, as displayed by Roholt's Merleau-Ponty-inspired critique of him (Roholt, 2014). The rhythmic invariant emerging between the players is given the status of a *linear* grouping of temporal elements. It is an echoic storage of pulses and subpulses unfolding along a countable time axis. The beat is an 'encoded sonic trace of the culturally situated music-making body' (Iyer, 2004b, p. 160). Its 'inner structure' is decodable in terms of milliseconds (Iyer, 2002, p. 398).

With this approach, the temporal organization is ascribed no productive force by Iyer. Admittedly, he observes that 'musical interaction is not a passive interaction either, because it also generates structure—it has its own sonic trace, which becomes part of the same interactive environment, and is perceived as contributing to and altering this environment' (Iyer, 2004b, p. 165). But note the passivity: the music 'is *perceived as* contributing to and altering this environment'; it does not *actively* contribute to or alter its environment. The activity lies fully with the enacting and interacting subjects.

Even if he would ultimately reject this reading, Iyer's SEA and linear approach to time deny him the resources to coherently spell out an alternative. The SEA is a grid, so to speak, which hinders the accomplishment of the ECA. It is a conceptual model forcing the embodied activities into a non-communicative structure.

3. Temporality, Institution, and Second-Order Enactment

The previous sections tried to draw out a critical reading of Iyer, based on perspectives from the phenomenological and enactive tradition that emphasize the symbolic form of human behaviour. In this section, we turn the tables, seeking the positive accomplishment of the perspectives insufficiently carried out by Iyer. The aim is to demonstrate how rhythmic perception—if approached as an aural, communicative, and symbolic form of behaviour—harbours a more potent structure than what Iyer suggests. There will be no comparison in terms of resemblance between M1 and M2. Rather, our claim is that the latter implies a full transformation of the former. To borrow Gadamer's description of transformation: 'Something is suddenly and as a whole something else.' (2004, p. 111).

We will start with a brief exposition of Merleau-Ponty's Husserl-inspired concept of temporality. Then (3a) we proceed to invoke the structure of joint musical attention belonging to M2: the dimension of high-skilled musical perception.

Husserl (the founding father of phenomenological philosophy) suggests that the structure of *inner time consciousness* is one of the most foundational conditions for the possibility of experiencing anything at all (Husserl, 1977; Zahavi, 2005, pp. 55–56).[6] Without something that ensures a temporal cohesion to the flow of consciousness, neither experiences of a coherent world of stable objects nor a grasp of ourselves as selves would be possible. According to Husserl, this is enabled through inner time consciousness organizing three distinct traits or aspects: (1) sustention of the immediate past (retention), (2) anticipation of the soon-to-come future (protention), and (3) the ever-flowing impression of the present (Zahavi, 2005, p. 56). Crucially, in this idea, past, present, and future are not ordered linearly as discrete elements. Rather, as structural moments of inner time consciousness, all three are 'in play' simultaneously, standing in relations of mutual specification to each other.

Merleau-Ponty carefully situates Husserl's analysis in the structures of lived, embodied intentionality: 'Time is not a line, but rather a network of intentionalities' (Merleau-Ponty, 2012, p. 440). The paradigm illustration of this phenomenological understanding of temporality is how we experience a melody. When we hear a melody, we do not perceive it as a succession of isolated present tones indifferent to one another. Rather, the melody emerges as a *holistic* and *dialectical* temporal structure. The value of every note is defined by (1) how it continues the path laid out by the tones that preceded it, (2) the ways it sets the stage for the notes to come, and (3) the ways in which the tone becomes modified by how the melody *actually* proceeds after it. 'For every moment that arrives, the previous moment suffers a modification', Merleau-Ponty writes, continuing with a slight metaphor in the palpable domain:

> I still hold it in hand, it is still there, and yet it already sinks back, it descends beneath the line of presents. … it would not be past if nothing had changed, it begins

6 The phenomenological analysis of temporality has been influential in certain areas of the mind sciences over recent decades. See, for example, Varela (1999), Thompson (2007), and Gallagher (2017b). The prospects and legitimacy of this and other applications of phenomenology in scientific contexts is often discussed under the heading 'naturalized phenomenology'. For a recent contribution to this debate, see Netland (2020).

> to appear perspectivally against or to project itself upon my present, whereas just a moment ago it in fact was my present. (Merleau-Ponty, 2012, p. 439)

In part, Merleau-Ponty's description pertains to how conscious subjects structure their experiences, and in this respect, Merleau-Ponty's points are reminiscent of Iyer's analysis of in-time practices. However, where Iyer ultimately locates the echoic storage of the temporal unfoldment *in* the subject, Merleau-Ponty views the temporal configuration *thoroughly* as an intersubjective phenomenon. Put otherwise, instead of viewing the temporal grouping as something that goes on merely in the embodied consciousness of the perceiver, Merleau-Ponty views the temporal grouping *also* as something literally going on *out there*, between the perceivers. In other words, there is a dialectic going on: the temporal *wholeness* of the melody emerges in the melody as a dialectical whole, but also in-between the melody and the perceiver (or perceivers). So construed, the holistic structure does not come *from* the perceivers any more than it comes *from* the music itself. It emerges in the constellation as a whole. Finally, in contrast to Iyer's passive concept of the temporal unfoldment, Merleau-Ponty ascribes the holistic structure an intrinsic, potent force. The temporal unfoldment literally harbours its own productive, self-generative force of production.

Allow us to paraphrase. Merleau-Ponty's displacement from subject to intersubjectivity has the consequence that our experience of time cannot be understood as being constituted by the 'preservation' of physiological or psychological 'traces' of the past (Merleau-Ponty, 2012, p. 435). Things—or *structures*, as Merleau-Ponty (2011) calls it—literally *have* their own time. Everything we encounter in the world is regulated by its proper norms, outlined by Merleau-Ponty as physical, vital and human ways of organization. In this perspective, any temporal structure conceived as one specific temporal form of organization is always embedded in something perceptually concrete. Qua perceptual and lived, temporal organization is never an abstract, objective timeline, but always concretized *in*, and mediated *by*, the specific qualitative circumstances of perception.

Thus, time is not something that merely gathers form in the embodied consciousness of the subject but something that arises 'only in transitions that consciousness does not itself accomplish' (Morris, 2018, p. 107). In Morris' words (see also Kelly, 2015), Merleau-Ponty conceives of

> the subject as immanent in a movement of time that the subject does not itself constitute, and … time itself manifesting the sort of not-all-given transitoriness and creativity of the sort that is endogenous to a subject that can be oriented by sense differences. (Morris, 2018, p. 105)

To illustrate, consider the enactment of a living organism. Through its processes of self-maintenance and interactions with its environment, the organism produces itself as a pattern of existence, a temporal structure. However, granted that the organism by necessity is situated in an environment, the *sense* of this temporality is not determined by the organism in isolation or by the surroundings, or, for that matter, in an external observer. No isolatable parts of the situation harbour the ultimate time; the rhythm of the event emerges by the fact that everything participates in the same structures. It is not a

coincidence that Uexküll, as Merleau-Ponty remarks, spoke of the *Umwelt* [environment] enacted by organisms as 'a melody that is singing itself' (Merleau-Ponty, 2003, p. 173). Organisms are temporal structures the parts of which are defined by relations to other parts and their function in the whole. The life of organisms unfolds according to a time and a normativity they themselves—through dialectical engagement with their environments—bring into existence.

Against this background, we see how Merleau-Ponty can describe time as a network of intentionalities. Ontologically, the world-time ultimately consists not of *one* objective timeline, but rather of dialectical patchworks of singular-yet-interconnected *ways of being and living time*. The life of the human being is conditioned by this dialectical patchwork. We can never raise ourselves *above* our existential conditions. However, due to the powers of symbolic behaviour, we can *relate to* our conditions. We can relate to our own syncretic and amovable behaviour, and in that sense liberate the 'stimuli' from the here-and-now relations (Merleau-Ponty, 2011, p. 122). Moreover, instead of being fully submerged in the temporal unfoldment from moment to moment, we can thematize temporality itself, and in that sense, let it become, at the limit, the proper theme of activity (Merleau-Ponty, 2011, p. 103). Crucially, humans can perceive the time contours of *others*. We can detach from our own private points of view, sensing the temporal organizations of the alter ego.

3.1. Joint Musical Attention

In our current parlance, the aspects indicated by Merleau-Ponty's concept of temporality belong to M1, that is, to the fundamental conditions of human consciousness, independent of musical skills per se. Nonetheless, we have already gone beyond Iyer's concept by clarifying how temporal structures (music included) self-organize 'out there', in the intersubjective domain. But this still only describes an *enabling condition* for music perception, without capturing its specificity as such. How, then, shall we conceive of the transformation into M2, that is, into the dimension of skilful enactive, symbolic, and musical behaviour?

Recall that symbolic behaviour involves the power to view perspectival variation in ways that are graspable for the subject *and* available for other subjects at the same time (Thompson, 2007, p. 76). In one sense, we perceive shared structures all the time; it is part of the everyday consciousness of the symbolic species (M1). But *aural jazz musicians do something more* (M2): they explicitly train to be sensitive to *pluralisms* of interrelated temporal organizations unfolding *together* in real-time polyphonic communication (Solli, Aksdal and Inderberg, 2021). As outlined by Berliner (1994), a larger jazz band can typically handle ten to fifteen different ways of hearing and enacting the shared beat, all present at the same time, and all making sense as a unified whole. In other words, they perceive multi-layered nexuses of temporal sense. Indeed, learning to hear and communicate in this nexus of temporal unfoldment *is* learning the *jazz language* (Monson, 1996). Strictly speaking, the rhythmic musical sense is *only* available for the competent musical ear. It *is* only in the polyphonic symbolic-communicative behaviour.

This is what we hear exemplified on 'Trane's Slo Blues'. May, Taylor, and Coltrane all have singular ways of acting out the beat as a holistic structure. Before Coltrane sets it, the attacks of May's bass unfold *just a little* ahead of Taylor's ride cymbal, together forming

the bouncing character of a swing beat. With Coltrane's entrance *way back* on the beat, the beat immediately transforms itself, now being carried out by three ways of bouncing off the beat. These musicians *knew* the musical language. They *knew* how to communicate in the auditory domain.

To see how rhythm qua symbolic language implies a dialectical transformation of M1 temporality, we need the structure of joint musical attention (Solli, Aksdal and Inderberg, 2022; the list is a modification of Tomasello, 2003, pp. 3–4). Consider how, given that musicians play *together* and let the temporal organization emerge in reciprocal, dialectical communication, the structure of musicians' communicative enactment (qua symbolic behaviour) implies the ability to:

- direct attention towards the same music as heard by others;
- hear not only how things are played but also how they could be played, i.e. the facility to perceive the rhythmic and tonal generative potential latent in the music;
- follow the musical attention of the other, i.e. the facility to perceive the rhythmic and tonal potential about to be acted out by fellow musicians;
- lead the attention of the other, towards self-perceived musical potentialities;
- learn through aural imitation. Imitation is not just a propaedeutic concern (Berliner, 1994) but also conditions the activity of pursuing the same musical sense as unfolded by peer musicians.

These criteria indicate structures of behaviour embedded in how musicians listen to each other and how they distribute initiatives within a musical collective. Both stylistic sense and rhythmic, melodic-harmonic sense are included; these are inseparable features of the music. Moreover, the implications of the criteria can be rephrased with focus on the musical sense unfolding between the attentive subjects. From the perspective of the music, joint musical attention implies the ability to:

- hear how perceptual and musical categories of similar and distinct musical gestalts are formed and dissolved;
- form perceptual and musical categories of how similar and distinct musical gestalts are formed and dissolved;
- hear musical transpositions based on similar functional roles of the musical gestalts.

These points indicate the structure of a complex whole: the musical sense is the in-between, the temporal unfoldment emerging between the musicians, as already exemplified with Coltrane's beat. Simultaneously, granted that human individuals *always* perceive differently (Merleau-Ponty, 2012; Roholt, 2014), the temporal unfoldment can also always be pulled in different directions in the joint musical attention. There is no *one* way to hear the temporal organization, but many—in fact, as many as there are possible ways of listening. Finally, although the points describe *abilities* by necessity possessed by communicating subjects, these are not 'just' skills *in* the perceiving subjects. Rather, they describe traits in the musical language, that is, in the self-reflective nature of the communicative form emerging between musicians—both in the momentary interaction of a band and in the aural language developed through centuries of communicative behaviour.

3.2. *The Beat as an 'Organism'*

Curiously, if we ponder the consequences of this analysis, we come across a classical philosophical metaphor. Plato (1995) and Aristotle (2013) considered successful products of (what we today would classify as) art as semi-living beings. The normative idea that a good poem or drama should be unified and well-proportioned with a beginning, a middle, and an end is neatly entangled with the Platonic-Aristotelian biological conceptions of unity, teleology, and the self-propelling force of life. In modern philosophy, Kant (2008) evokes and re-defines the comparison within the transcendental philosophy of beauty. As Zuckert puts it, 'just as in an organism, (we judge that each of) the heterogeneous parts ought to be the specific way that they are, to perform their functions in the organism … so too do we have a sense of inevitability, necessity, naturalness about the specific, empirical character of beautiful objects' (2006, p. 611). Gadamer's philosophy reflects both the Platonic-Aristotelian and the Kantian conceptions. Gadamer ascribes artistic beauty the self-propelling normative force of *energeia* (being-at-work) and *ergon* (work) (2004, p. 110), traits typically ascribed living organisms by the Greeks (Nussbaum and Rorty, 1992).

Against this background, if we contemplate the rhythmic forms emerging in-between the joint musical attention in light of Merleau-Ponty (2011) and Thompson (2007), we now see that rather than conceiving of the beat as *environment* (as Iyer does), we can in fact understand it as an *organism*. This is partly an analogy, of course, because to say that the beat really comes alive would be to stretch things too far. Contrary to real organisms, the beat is not an agent of actual sense-making—it does not constitute a perspective on the world wherein things are meaningful *for it*. In a crucial sense, it depends on being enacted by the musicians and us, as listeners and human beings. Moreover, the beat has no physical structure comparable to a living organism. It has no individualized extension in space. The rhythmic organization *is* only in the ephemeral audible domain and in the bodily feel and behaviour it creates in the players and listeners. In fact, according to our distinction between M1 and M2, certain aspects of the beat are *only* available for people with M2 competence. High-skilled musicians, being as fluent in the musical language as in their mother tongues, have the powers to carve out, so to speak, the meaningful inner structures of their expressive means of communication. However, the comparison between the beat and the organism is also *not* merely an analogy. It points to a profound structural similarity. For as we now will try to indicate, it makes sense to say that a beat like Coltrane's *is* a holistic structure, whose wholeness is more than a sum of its parts (Merleau-Ponty, 2011, p. 150), and whose aural reality harbours a perceptual attunement to the world (Thompson, 2007, p. 80). It makes sense to say that the beat possesses inherent self-propagating formative power (Kant, 2008, p. 202). Something organizes itself—something that somehow pushes the beat from within. We hear it clearly at 0:21, when Coltrane enters 'Trane's Slo Blues'. The beat suddenly 'stands out' with a new surplus of musical sense or *swing*. Indeed, this is what Gadamer would call transformation into structure: The beat has got its own semi-living measure and 'measures itself by nothing outside [itself]' (Gadamer, 2004, p. 111).

The curious factor evolves because the enactivist literature currently allows us to flesh out (pun intended) the classical philosophical metaphor of the artwork-as-organism in novel and more nuanced terms. Putting into parenthesis questions concerning the validity of the descriptions of real organisms, we can borrow descriptions from Thompson (2007), somewhat experimentally, to identify more intriguing traits of the jazz beat's temporality. Let's try it out.

First, to compare the beat with an organism is to say that the beat is an emergent structure in the sense that it emerges for the enactive ear of the players (and us, as listeners). This emergent structure is *holistic* in the sense that the total structure is not merely the sum of its constituent parts, and the value and function of the parts in turn are defined by their place *in* the totality. As such, it displays the organizational feature Thompson, in identifying properties characteristic of life, labels 'dynamic co-emergence': 'Dynamic co-emergence means that a whole not only arises from its parts, but the parts also arise from the whole. Part and whole co-emerge and mutually specify each other' (Thompson, 2007, p. 38).[7] The crux is now to see how this dynamic co-emergence implies, or indeed is generated by, what Merleau-Ponty calls *immanent signification*. The behavioural and qualitative form emerging between the players is not only *enacted*: in a certain sense, the beat enacts back. Borrowing Merleau-Ponty's wording, the beat must be conceived as 'a center of actions' from which it *aurally* 'radiate[s] over a "milieu"' (Merleau-Ponty, 2011, p. 157). In other words, the beat is not merely explored, but is itself explorative: it forms its surroundings, which here include individual musicians playing. In fact, it forms us as listeners as well. Decades after the date of recording, the beat does not just bounce off in our own bodies; Coltrane's way of playing has also instituted musical history, embedded in the playing of generations of subsequent musicians.

Second, when Coltrane sets in at 0:21, we hear how the transformation of the beat illustrates the formation of a structural *inside*. The *sense* or *essence* of the beat as a whole is specified anew with the entrance of Coltrane's laidback handling of the structure set up by May and Taylor. This means, among other things, that the identity or individuality of the beat as a unique musical expression has been more explicitly defined, which also involves 'setting up' norms for the direction of its further explorations. With regards to the organism, 'interiority comprises both the self-production of an inside, that is an autopoietic individual, and the internal and normative relation between this individual and its environment' (Thompson, 2007, p. 79). It closes off around itself, so to speak, in the formation of an intrinsic nucleus of sense dynamically pushing and forming the behaviour of its surroundings, namely its exteriority. 'Although inside and outside are dynamically co-emergent, they do not share the same symmetrical relation' (Thompson, 2007, p. 79). The meaningful 'inside' is *prime*: it dynamically generates an asymmetry between the ways that it is heard (the 'outside') and the abundant quality of always being *more* than what is heard.

7 The idea that intersubjective, embodied interactions in some cases are characterized and guided by over-individual structures is articulated well in the theory of 'participatory sense-making' (De Jaegher and Di Paolo, 2007; Fuchs and De Jaegher, 2009). See also Gallagher's discussion of 'relational autonomy' (2020, p. 207 ff.).

Third, the beat is characterized by an intrinsic or immanent *purpose*: 'Each of its parts is both a product and a producer of the other parts' (Thompson, 2007, p. 145). As outlined above, the beat is ultimately a product of human activity and as such dependent for its existence on intentions external to it in a way that organisms aren't. Consequently, the sort of purposiveness manifested by the beat should not be understood as involving a goal-directed or self-concerned *perspective*, but only the part-whole organization that makes it the goal of its 'own' activity (which of course depends constitutively on the individual musicians' activities).[8] Nonetheless, there is still an important sense in which the *telos* of the beat is its own creation. While the beat is a product of musicians' embodied enaction ('sound of human bodies in motion' as Iyer called it above), it is simultaneously a *producer*—or *enactor*—of these enactions in virtue of sketching out a unique logic that guides the musicians' behaviour without being reducible to their individual minds.

Fourth, the beat realizes equilibrium by modifying its milieu according to the internal norms of its activity (Thompson, 2007, p. 147). The beat forms itself as a dynamic equilibrium: *forming* and *dissolving* order as it bounces off. In other words, the beat as holistic structure manifests itself through negotiating the various forces that influence it into a more or less 'coherent' or stable expression. To borrow Roholt's phrasing, everything in the music glues itself organically around the coalescing force of the beat's intrinsic push (Roholt, 2014).

Fifth and final, the beat *institutes* its own time. In Merleau-Ponty's words, 'institution is the recentering … around a new pole, [the] establishment of a system of distribution of values or of signification' (Merleau-Ponty, 2010, p. 25). This relates to what we have already seen: the temporality of the beat, its expressive sense, unfolds according to a logic of development that is actualized within the beat itself. But the point here is also broader than this: as an institution, the beat points beyond itself, revealing possibilities that can be further explored by future beats. Coltrane's music, then, can be seen as the opening of a new field, a new way of hearing and generating musical sense. At the same time, the historical roots of jazz are far from insignificant for grasping its specificity. Thus, Coltrane's beat is both a continuation and a renewal, and it is within this dynamic that its status as instituting must be understood. The temporality of the beat is neither an identical reproduction of previous beats nor does it spontaneously emerge *ex nihilo*—it is, as Merleau-Ponty says of institutions in general, 'neither mimicry of the past …, nor fulguration of the future' (2010, p. 7), but a prospective instituting of a future. It institutes a 'temporal structure wherein past, present and future stand in a dynamic, internal relationship. In other words, the beat is real *and* never finished (Merleau-Ponty, 2010, p. 25). It institutes a symbolic matrix of lived sense, sketching itself out according to immanent temporal measures.

8 The idea that living organisms are characterized by intrinsic purpose has been central to the enactivist project since the publication of Weber and Varela's 'Life after Kant' (2002; see also Thompson, 2007, p. 146 ff.). The distinction we draw between 'part-whole' and 'perspective' purposiveness is due to Di Paolo (2005), who argues that the former (identity-generation) does not by itself entail the latter (sense-making), but that enactivism requires a concept of *adaptivity* in order to properly ground sense-making in biological organization. As we make clear, the comparison of the beat to an organism is not intended to hold this far down in the theory of life.

3.3. *Second-Order Enactment. Concluding Remarks*

What constitutes the enaction of a jazz beat? We have argued, against Iyer's SEA, that a one-to-one relation between M1 and M2 amounts to an oversimplification. The enactment of a jazz beat is not an extension of what goes on in everyday perception into a new medium; rather, it involves a full transformation of these structures. To illuminate the significance of this, we have suggested a revitalization of the age-old idea of works of art as akin to living organisms. The beat is not simply *environment*—it is not merely explored and enacted by musician-organisms that stand over and against it. It is a holistic, life-like, temporal structure that exhibits a structure of second-order enactment: emerging between players, the beat is 'self-reflective' in the sense that the group's behaviour 'folds back' onto itself. It *is* itself signification, as Merleau-Ponty (2011, p. 122) would say, actualizing a norm of organization 'between' its individual participants that guides their behaviour towards a unified, expressive sense. In other words, a jazz beat like the one exemplified by 'Trane's Slo Blues' is a full-fledged structure. It is not just *enacted*; in a certain sense, it *enacts back*. It is not just *in time*, but *sets* or *institutes time*: it pushes its own temporal organization into being.

With the above critique of SEA and our suggested alternative, we have not so much proposed a solution to a problem as we have opened up new challenges and possibilities for the field of enactive and embodied musical cognition. We have attempted to steer the focus away from the currently worn-out parallelisms between the perceptual activities of non-human organisms and human musical cognition, towards a greater recognition of the unique structures of the latter. One direction for further research would be to offer more concrete and detailed analyses of the temporal organization unique to individual pieces of music or of jazz beats in general, and explore how the institutional character manifests in such cases. Another direction is to engage in a deeper study of the embodied, enactive, and intersubjective nature of the aural-communicative capacity specific to the jazz tradition. Like all symbolic structures, the possibilities for future engagements are almost limitless. Let's start by listening to some more music.

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