Participatory Sense Making in Jazz Performance: Agents’ Expressive Alignment

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Abstract. Relationships between musicians in Jazz performance can be understood as autonomous (turn-taking) versus simultaneous (playing joint), both assumed as social interactions that take place as to create meaning in a participatory way. To participate, in music performance, requires expressive alignment, in order to share the act of producing and perceiving sound and movement in an embodied interrelated phenomenological experience. In such context, interaction is assumed as an expressive exchange of meanings. In this work we study a trio jazz performance from an interrelated approach, applying a methodological design that combines objective/statistical measures, and subjective/phenomenological data. An experiment that tested different conditions of turn-taking and/or joint playing of a Jazz standard was conducted in a recording studio session. All the performances were registered through audio/video media, and motion capture technology. In addition, in-depth interviews before playing/after recordings were conducted. Time series data related to sound and movement were analysed to study features of expressive alignment, accounting for descriptors of participatory sense-making. A Sense Granger measure was developed from Granger Causality measures in order to describe expressive alignment between-and-within performers. Significant differences were found in situations of turn-taking, and simultaneous playing between conditions. Results show that, beyond such differences, jazz musicians sustain interpersonal transactions based on their phenomenological experience of ‘going together in time’. Sense Granger measures serve to account for the ways expressive alignment evolves in time, providing significant cues that help understanding participatory sense making in jazz performance.

Procedure:
Task: Jazz standard studio performance in four conditions (Turn-taking / Joint Playing - Main Theme / Improvisation)
Dataysis: 4 time series (2 movement / 2 audio) x 2 Sax performers
Analysis Methodology: Granger Causality

Aims:
To explore the flow of mutual influences that account for Participatory Sense Making exchange in a jazz improvisation.
To characterise through sound and movement feature description analysis the agents’ expressive alignment displayed by the musicians in their performance.

Assumptions:
Expressive alignment varies according to what section the improvisers play (Main Theme or improvisation)
Expressive alignment varies according to the role musicians play during performance (Turn-taking or Joint Action)

Results
Sax Musicians Interaction
Standard
51.08 p = 0.001
Standard Musicians Interaction
F = 10.89 p = 0.001
Sax/Standard
F = 89.63 p = 0.001

Conclusions
Jazz improvisation is a sociocultural practice of Participatory Sense Making. Results indicate that musicians experience performance as going together in time. Nevertheless, they appear to make sense differently whether they play taking turns compared to Joint playing.
Expressive alignment, a feature that characterises musicians inter-action, accounts for the ways sender and receiver engage dynamically in encoding-decoding perception-action alignment loops. In our study, Sense Granger was elaborated as an analytical tool capable of accounting for the ways expressive alignment evolves in time. While aligning expressively, musicians negotiate meanings by means of contingent playing, and/or autonomous goal-directed (TTS) actions during performance. Significant Sense Granger was assumed to attest for features of Participatory Sense Making.
In taking turns instances of apparent agents’ autonomy; communication loops are sequential, while in Joint instances, communication loops are overlapped. These two contexts bring about different environments for PSM. Whether or not musicians are fully aware of such complexity in their phenomenological experiences, the sound kinetic outcomes of their joint and/or sequential autonomous actions provide significant cues that help understanding the meanings of PSM. At the same time, SG peaks located at located at music structural instances seem to convey formal meaning in PSM expressive alignment.

References