INTERACTIVE EXPERIMENTAL METHODS IN THE FIELD: APPLICATION AND RESULTS

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The principle of the methods that we have developed is to make the musicians actors in the experiment, able to react immediately to the proposals of the investigators and to provide modifications of them, directly or indirectly. The goal is to arrive progressively at a model of the scale system used by the community; in other words, to reveal the collective mental representation that the holders of a tradition have of their musical scale.

For Ouldémé flutes, we had to work with several instrumentalists each playing with two flutes. In collaboration with acousticians of Ircam (Paris), we built a set of electronic flutes managed by a MIDI-system. Each flute was equipped with a breath-controller – driving a physical-model synthesis of sound – and two buttons – pressed by the flutists themselves to change the pitch of the sound.

For vocal polyphony of Bedzan Pygmies, the method used requires equipment and software for multi-track digital audio-recording, sound signal analysis-synthesis and analysis and formalisation of the musical language. Briefly described, the first phase involves the simultaneous recording of all parts of a polyphonic song. Each part can then be analysed separately: the measured observation of the pitch fluctuations must allow for the formulation of hypotheses concerning the size of the intervals, their distribution and the determination of classes of intervals in the musical scale. All of the parts are then modified – as a function of these various hypotheses – to reconstitute the polyphony, without modifying the timbre of the singers' voices nor the metric and rhythmic structure of the polyphony.

The next step involves proposing these various hypotheses to the musicians by simulation of traditional performance conditions. Thus, we can analyse their reaction to the proposed scale and thereby formulate new hypotheses.

By the application of such methods in the field (cf. video examples), it appeared that the scales are based on a system of reciprocal constraints between intervals of triads and tetrachords as structuring frames, rather than on the division of the octave into several types of intervals.

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