The perception and recognition of Wagnerian leitmotifs in multimodal conditions

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Introduction. The leitmotifs in Richard Wagner's "Der Ring des Nibelungen" fulfil several musical, dramatic and semiotic functions. While many music-analytic and hermeneutic studies have investigated Richard Wagner's use of leitmotifs as a compositional technique, the question as to the extent to which the recognition of leitmotifs is possible in the context of the overall net of leitmotifs, seems to be, as yet, largely unexplored.

Aims. The present study investigates the influence of several factors on the recognition and understanding of leitmotifs: First, the effect of inherent musical features of the leitmotifs themselves; second, the influence of listeners' musical background such as music theoretical knowledge, musical skills and specific Wagner-expertise; and third, the impact of presentation context, i.e., audio vs. audio-visual.

Methods. Forty-five subjects (musicians and non-musicians) were required to recognize four distinct leitmotifs ("Ring-Motiv", "Vertrags-Motiv", "Grübel-Motiv", "Nibelungen-Motiv") in a ten minute excerpt from "Siegfried", the so called "Wissenswette" in the second scene of the first act. According to the semiotic typologies of signs of the American philosopher Charles S. Peirce it was possible to differentiate between iconic (i.e. "Grübel-Motiv") and symbolic (i.e. "Vertags-Motiv") motifs.

After providing socio-demographic and musical background information as well as reporting their knowledge of Wagner's musical works and his compositional techniques, subjects had to memorize the four leitmotifs. The subjects could listen to the leitmotifs as many times as they wished.

In order to analyse the influence of the leitmotifs' characteristics on the listener, subjects were also asked to note down spontaneous associations while listening to the leitmotifs. Thus the semantic content of the leitmotifs and the correlation of the leitmotifs' structure and their meaning could be assessed. Afterwards, a short memorisation test preceded the main recognition task. For this purpose 20 other leitmotifs, among them the four relevant leitmotifs, were randomly presented to the participants. The subjects had to give an agreed sign if they recognized the four leitmotifs.

For the leitmotif recognition test, the subjects were divided into two groups: The first group listened to an audio excerpt of the Siegfried scene, whereas the second group was presented with the full audio-visual sequence.

During the recognition task a MIDI-keyboard was installed in front of the participants; four of its keys were assigned to the four leitmotifs. With an additional (correction) key the subjects were able to correct possibly wrong identifications. The subjects were asked to press the respective key as long as they could hear the specific leitmotif and release the key not before the leitmotif had faded away.

The MIDI-signal of the keyboard was recorded with "Cubase". The audio sequence of the excerpt from "Siegfried" was as well imported in "Cubase", so that the two tracks could be easily synchronized and recognitions matched. Due to Wagner's elaborate system of leitmotifs, the motifs in the chosen sequence were not necessarily identical to the ones presented for memorization. They could differ in

length, shape, tempo, instrumentation and timbre. Moreover they could appear as short fragments of the whole motifs.

Results. On average, 47. 2 % of all possible occurrences of Leitmotifs could be recognized. While the "Vertrags-Motiv" (72.2 %) and the "Grübel-Motiv" (62.7 %) were recognized by the majority of subjects, the "Nibelungen-Motiv" (34.3 %) and the "Ring-Motiv" (22.6 %) were less frequently identified. Expertise in Wagner's music was a significant predictor for the overall as well as for specific leitmotif recognition rates, while musical skills were had only a small influence. No significant differences in leitmotif recognition rates between presentation modes (audio vs. audio-visual) across all motifs could be observed. There was only a small influence on the "Nibelungen-Motiv" recognition, probably due to the evident connection between the musical motif and the corresponding visual presented protagonist. Significantly higher recognition rates were found for the most salient (concise) motif ("Vertrags-Motiv"), and for the most clearly iconic motif ("Grübel-Motiv"). With regard to semantic content, the "Grübel-Motiv" and the "Vertrags-Motiv" were more likely to be associated with their standard meaning than the "Ring-Motiv" and the "Nibelungen-Motiv". At least in our sample, the semiotic nature and salience of leitmotifs seem to be independent dimensions. Consequences for the communication process will be discussed.