A Few

1. Introduction

1.1. What are stems?

In popular music or film sound the name “stems” refer to sub-mixes of similar materials within a multi-track production based on heterogeneous sounds. For example, a soundtrack of a movie usually consists of multiple tracks of dialog, environmental sounds, music and special effects. Those tracks can be grouped together according to their type/function and stored as separate sound files.[iii] During the final mixing the mixing engineer then does not need to worry about the element's mix within each stem, but rather focuses simply on the level balance between the stems themselves. The concept of stems facilitates therefore the mixing process and also the creation of alternate versions – like a movie in different languages – as only some of the stems have to be replaced.

1.2. Stems in electroacoustic Music

The idea of stems could

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2. The case of spatial stems – benefits and limitations

2.1 Impact on spatialisation and space

As stated before, spatial stems improve spatial resolution. But what does this actually mean? Consider the following situation (Illustration 2). Two listeners sit in a reverberant venue, one sits relatively close to the frontal loudspeakers (listener “A”), one further away (listener “B”). If a sound is supposed to appear distant listener A might still perceive the sound to be physically close as he is sitting close to the loudspeakers. The opposite is true for listener B as he might hear almost everything as distant as he is sitting far away from the loudspeakers and the difference between the simulated distant and close might not be audible for him due to the venue's own acoustics. Sound diffusion could ease this problem with adding loudspeakers in distance to the listeners and routing the piece to those loudspeakers for moments when it should sound distant. This works well if the piece is momentarily supposed to appear either far away or close but doesn't work well when different musical layers mix distant and close sounds at the same time. Stems however would be beneficial here as those layers could be split to different stems and the stems with the distant sounds could be assigned to the distant loudspeakers while the close ones to the close loudspeakers. This means that each loudspeaker would reproduce its dedicated mix and elements of a composition could appear spatially **independently** of each other. As a result the spatialisation would be richer in depth.

Secondly, spatial stems help to reduce local masking in certain circumstances. Consider the following

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References

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