Ragnhild Brøvig-Hanssen and Bjørnar Sandvik:

Dynamic Range Processing's Influence on Perceived Timing

To what extent does dynamic range processing influence our auditory perception of temporal placement in music? An example of dynamic range processing is compression, which function is usually to narrow or compress an audio signal's dynamic range, often with the purpose of making the music sound louder, or making sonic features within the music more consistent in dynamic range. Dynamic range processing can also be used to reduce the amplitude of one sound source at the moment when another sound source reaches the threshold—an effect usually referred to as "side-chaining." "Envelope following" is another example of dynamic range processing, in which a signal's envelope is set to resemble, and be controlled by, the amplitude variations of an incoming signal. While dynamic range processing is usually described as impacting the music's sound, this paper presents a work-in-progress that examines the extent to which it also influences our perception of the processed signals' temporal placements at a micro level. This examination relies on Danielsen's hypothesis that perceived temporal location of a sound is affected by the sound's sonic features, including temporal shape, intensity, and timbre. Our hypothesis that dynamic range processing influences perceived timing will be discussed in light of recent studies on the relation between sound and timing (Hove et al 2007, Danielsen and London forthcoming, Tekman 2012, Villing 2010), and demonstrated through musical examples. We will also draw on our qualitative semi-structured interviews with EDM producers, in which they reflect upon the dynamic range processing's influence on perceived timing.