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Title: **Stereoscopic video transmission: a future application of spatial embedded coding**
Source: **PTT Research (NL)**
Purpose: **Information**

One of the possible future applications of multichannel video transmission is stereoscopic TV, where two video channels need to be transmitted: one intended for perception by the left eye and the other for the right eye. The system may be extended for multi viewpoint transmission, where more than two video channels need to be transmitted.

Savings in the transmitted bit rate may be obtained by prediction of one signal from the decoded signal of another viewpoint, if the difference in viewpoints is compensated. This is called disparity compensated prediction, which is currently studied and developed in the European RACE DISTIMA collaboration project. In our setup for stereoscopic video, one of the channels is encoded stand-alone conform MPEG. The other channel is coded similarly, but besides the temporal prediction also disparity compensated prediction is possible.

The solution for spatial embedded coding as described in MPEG TM4 offers the basic capabilities for coding with disparity compensated prediction, since the disparity compensated prediction (generated external from the standard MPEG decoder) can be referred to as the spatially embedded signal, which is not subsampled.

A possible stereoscopic profile based on standard spatially embedded decoders, will use the **user_data** in the picture layer of the video mux for transmission of the disparity information.

It is essential for this application that a decoder can access an external prediction in generic sense, as supported by the spatial embedded syntax in TM4.

An example of this possible stereoscopic profile decoder is provided in figure 1.
One channel receivers decode only channel 1, obtaining one viewpoint of the stereoscopic signal.

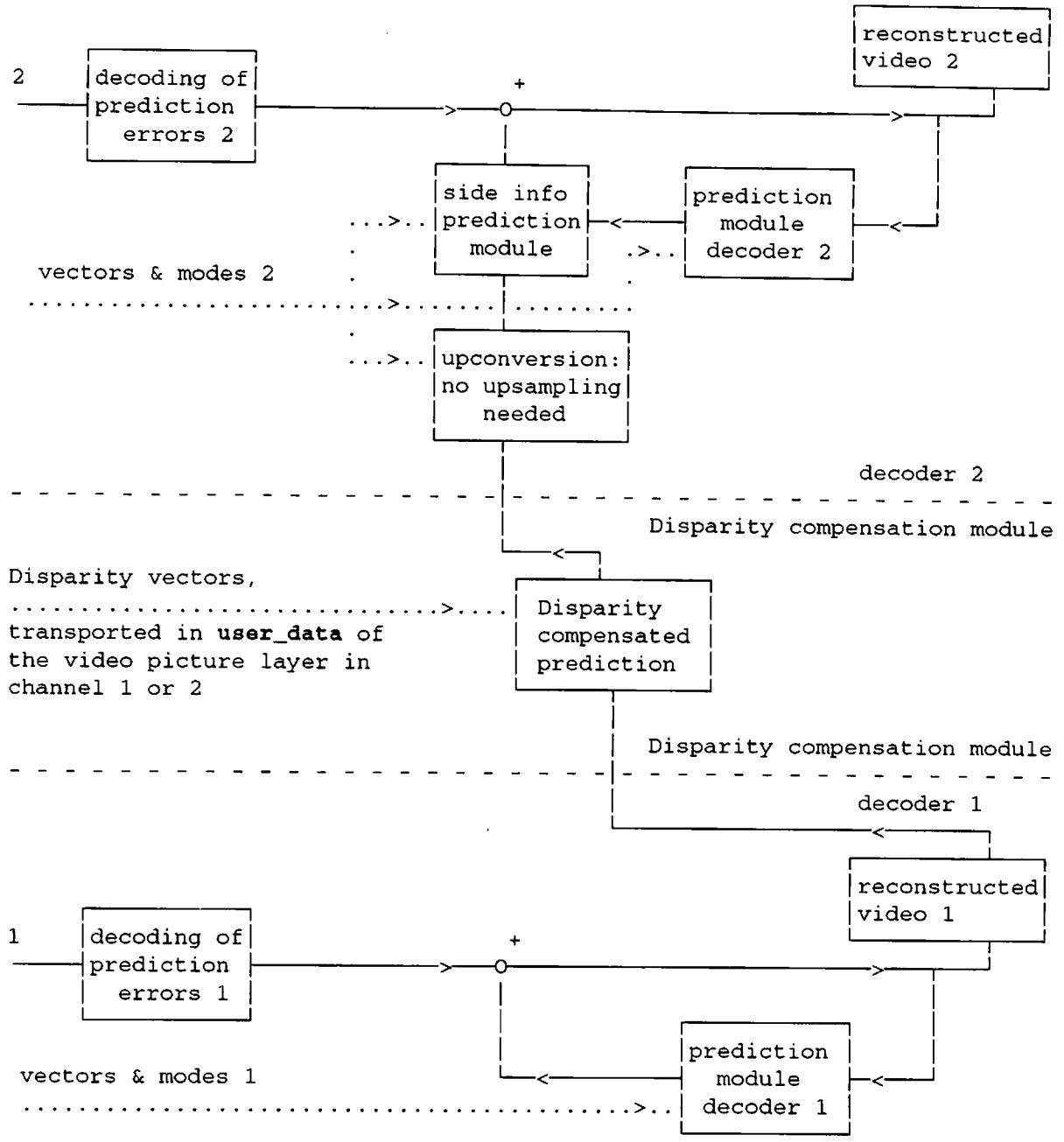

Figure 1: Example of stereoscopic decoding

DECODER 2: Spatially embedded MPEG decoder, with motion compensated prediction and/or prediction from the embedded signal, which is here the disparity compensated signal

DECODER 1: Stand-alone MPEG decoder, e.g. main profile.