Supplemental Material S3. Setting up video scaling to square pixels in HandBrake (v1.5.1).

HandBrake has an easier interface for non-programmers. In HandBrake after loading the input video file, the video resolution and scaling must be adjusted in Dimensions tab. First, to allow proper upscaling, Resolution Limit must be set to "Custom" and set Maximum Size to be the larger of the source dimensions for both width and height. To set Pixel Aspect, Anamorphic must be set to "Custom". The values for Pixel Aspect depends on whether the PAR is stored in the source file. If the PAR is stored, specify Pixel Aspect to be "1:1". If not, specify it as the reciprocal of the actual PAR (e.g., if PAR = 10:11, set Pixel Aspect as "11:10"). Finally, check the "Allow Upscaling" checkbox.

In addition to the above necessary HandBrake configurations to square the pixels, be aware of two notable HandBrake configurations. First, "Cropping" setting is set to "Auto" by default, which crops a few rows and columns of pixels from each edge of the video frame. Use "Custom" setting and set all cropping settings to zeros to maintain the original frame size. Second, the video quality setting (Video tab, Quality, Constant Quality) must be set carefully to maintain the video quality of the source file.

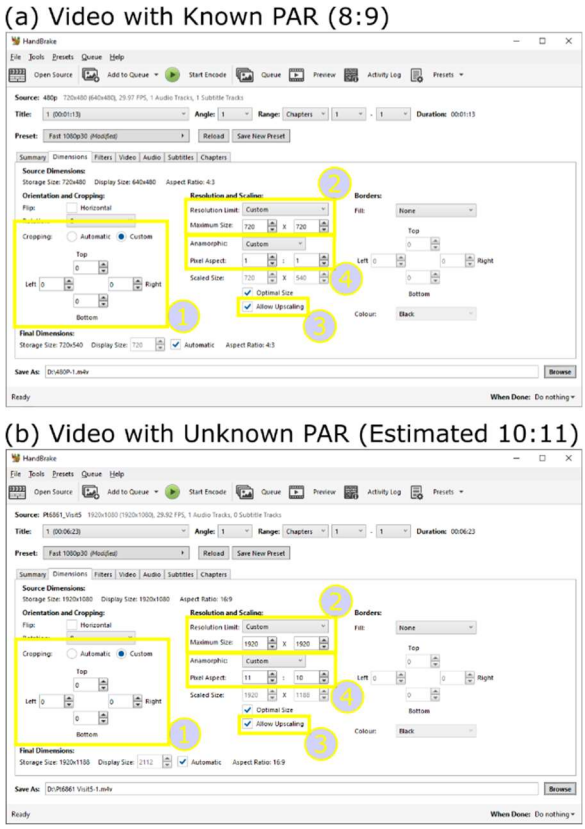

Figure SM.3. HandBrake Screenshots setting up video scaling.