In the main body of the paper ‘Evolution of Semilocal String Networks: II. Velocity estimators” we analyse the segment length and velocities using the $\beta = 0.04$ case and all the distribution plots shown are for $\beta = 0.04$. We have stated that the rest of the values of β that we have analysed share the same behaviour. In this supplemental material we show the figures for different values of β.

I. $\beta = 0.20$

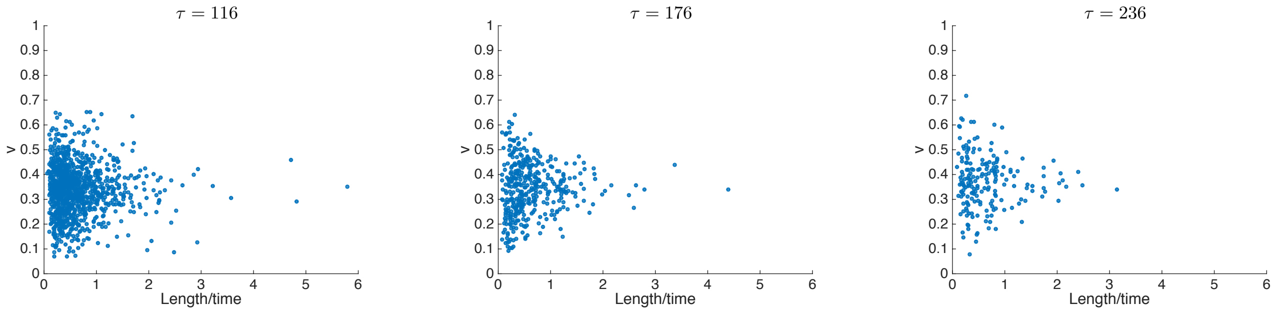

FIG. 1: This plot shows the distribution of segments with respect to velocity for simulation in radiation domination and $\beta = 0.20$ for all seven simulations. Each point represents a segment in the network, where in the x-axis the length of the segment divided by time is shown and its velocity in the y-axis. This is the case where segments *flow* through the network, i.e., they do interact with any other segment in the next time step. Note that the segments are shorter on average, as expected for higher β.

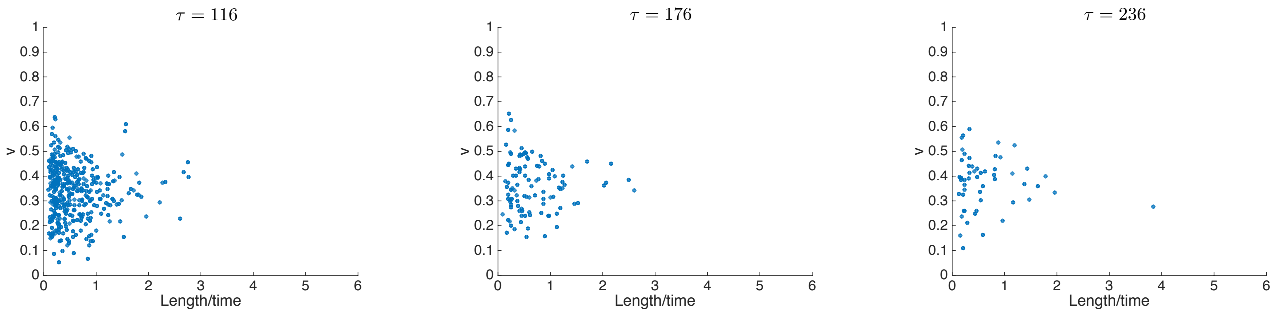

FIG. 2: This figure is similar to Fig. 1, but in this case the segments that are plotted are those that *merge* with other segments before the next time step.

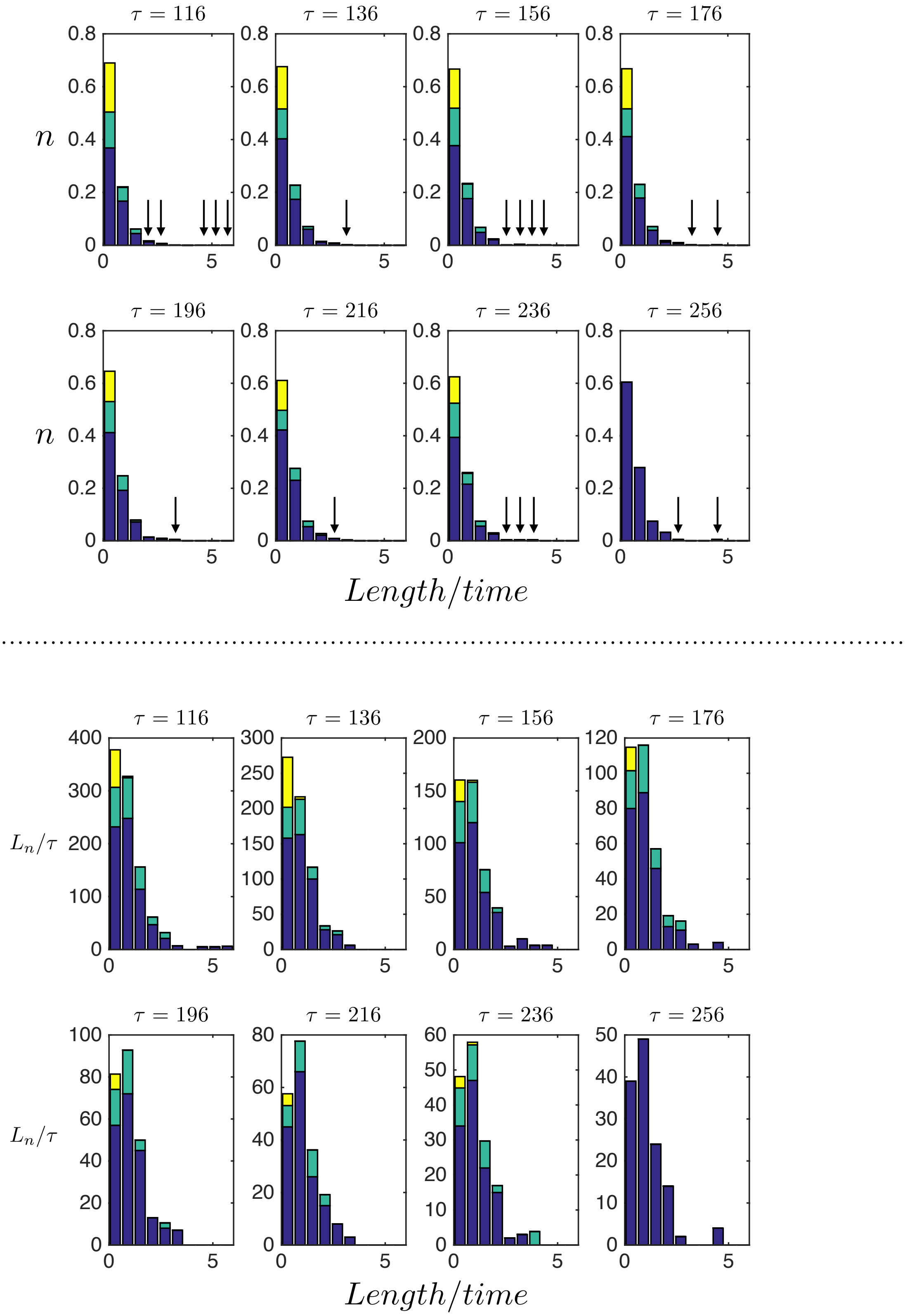

FIG. 3: These histograms show the distribution of the segments during the network evolution for $\beta = 0.20$ in the radiation dominated era for all seven simulations, where the segments are binned in 10 bins with uniform width. The top panels show the fractional distribution of the number of segments n with their lengths divided by time, whereas in the bottom panels show the analogous distribution for the total lengths divided by time L_n/τ. The colors represent different types of segments, depending on their future behaviour: in blue segments which are *flowing*, in green segments that are *merging* and in yellow segments that are *collapsing* before the next time-step. We write arrows to remark that in those instances, there are a few (one or two) segments in that bin, which are hard to see in the top panels, but can be seen in the bottom ones. Note that in the last time step we have no information whether the segments will flow, merge or collapse, so we just choose to show them as flow segments.

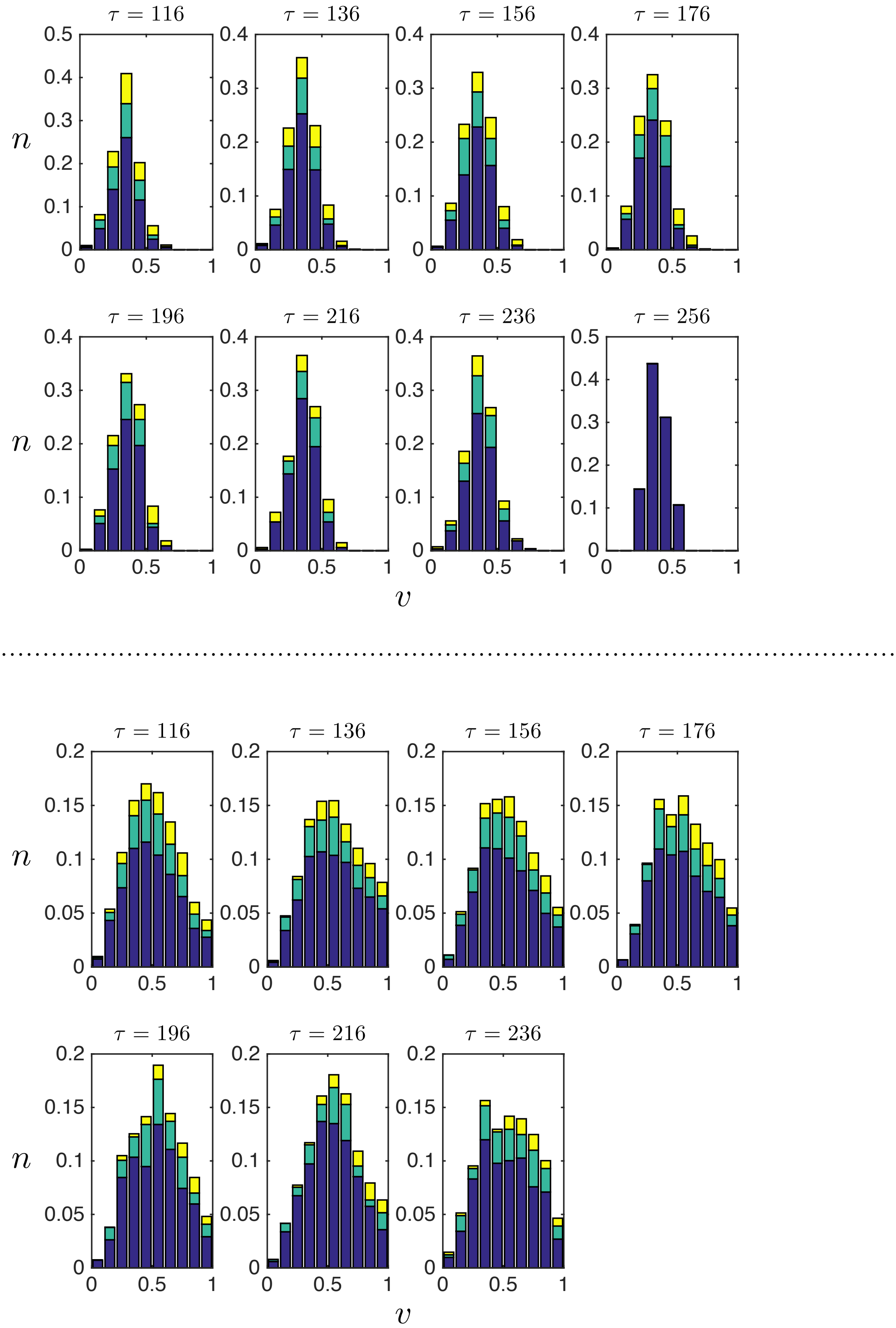

FIG. 4: These histograms show the velocity v distribution of the segments (top) and monopoles (bottom) during their evolution, for radiation and $\beta = 0.20$. The velocities are binned in 10 bins with uniform width. The color code is analogous to that of Fig. 3: blue corresponds to strings that do not interact with other strings before the next time-step (flow), green is for strings which merge with other segments and yellow is for strings that disappear before the next time-step because the segment collapses. Note that in the last time step of segment velocities we have no information whether the segments will flow, merge or collapse, so we just choose to show them as flow segments. Note also that unlike in the segment case, where the velocity has been calculated *forward* and *backward*, for monopoles we have only calculated the velocity *forward*, and therefore we do not have information to compute the velocity at the last time step.

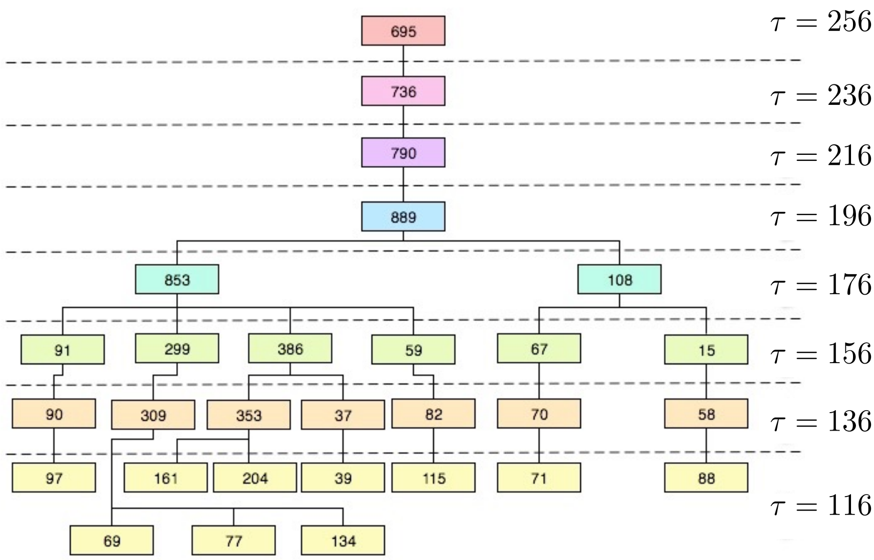

FIG. 5: The "family tree" of a segment for $\beta = 0.20$ in radiation. The number inside the box denotes the length of each segment, and time runs upwards.

II. $\beta = 0.35$

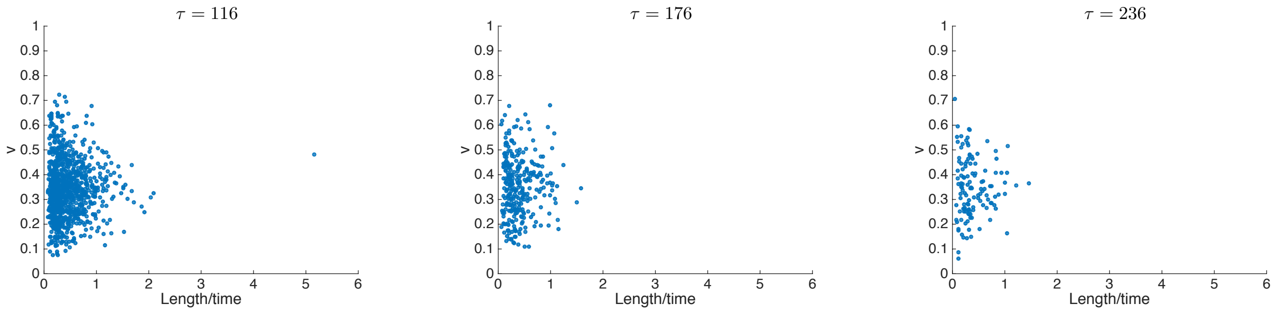

FIG. 6: This plot shows the distribution of segments with respect to velocity for simulation in radiation domination and $\beta = 0.35$ for all seven simulations. Each point represents a segment in the network, where in the x-axis the length of the segment divided by time is shown and its velocity in the y-axis. This is the case where segments *flow* through the network, i.e., they do interact with any other segment in the next time step.

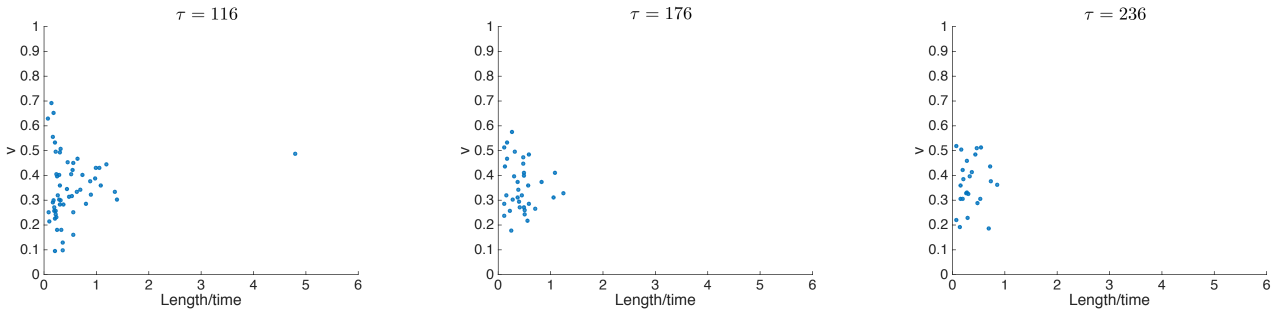

FIG. 7: This figure is similar to Fig. 6, but in this case the segments that are plotted are those that *merge* with other segments before the next time step.

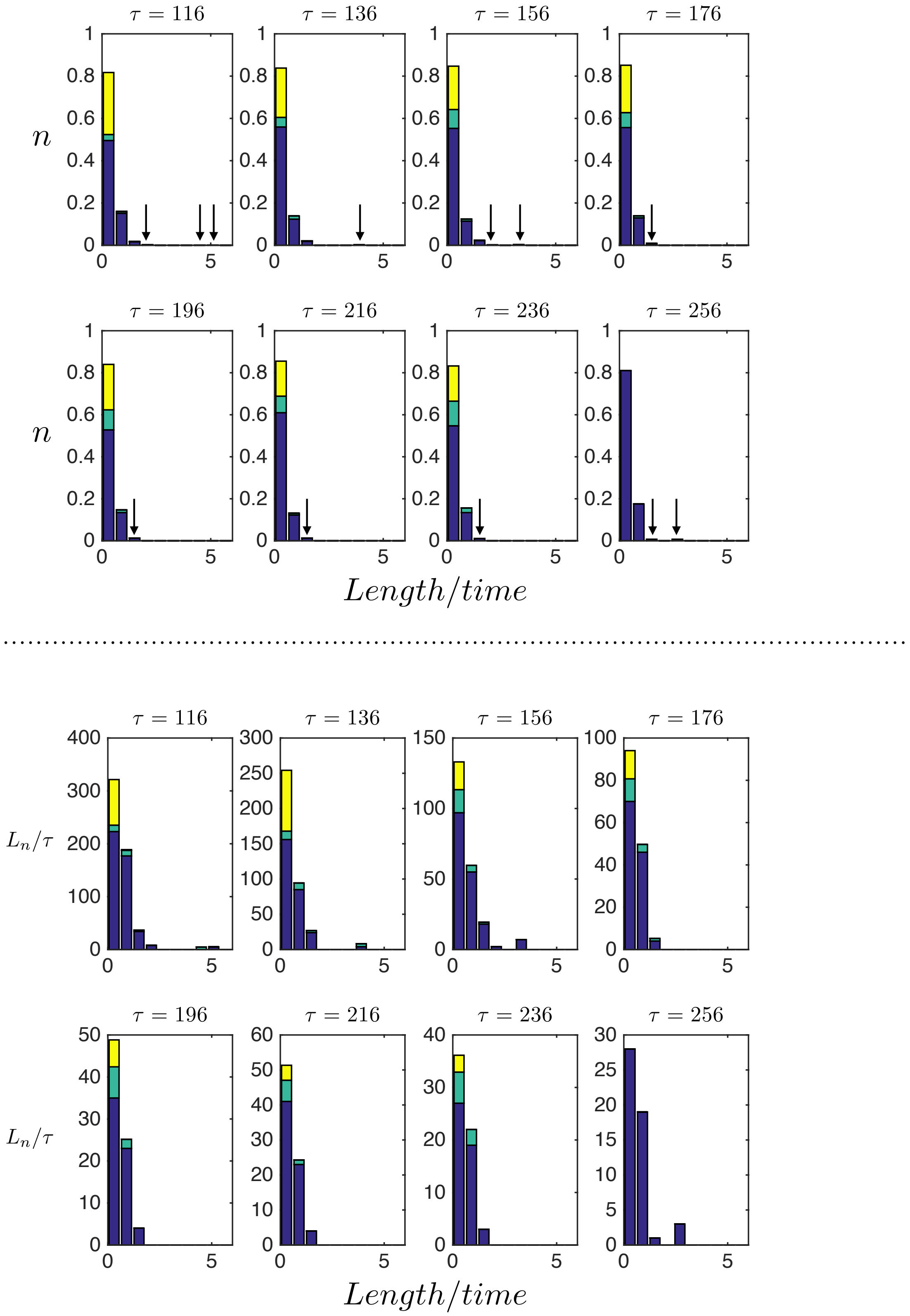

FIG. 8: These histograms show the distribution of the segments during the network evolution for $\beta = 0.35$ in the radiation dominated era for all seven simulations, where the segments are binned in 10 bins with uniform width. The top panels show the fractional distribution of the number of segments n with their lengths divided by time, whereas in the bottom panels show the analogous distribution for the total lengths divided by time L_n/τ. The colors represent different types of segments, depending on their future behaviour: in blue segments which are *flowing*, in green segments that are *merging* and in yellow segments that are *collapsing* before the next time-step. We write arrows to remark that in those instances, there are a few (one or two) segments in that bin, which are hard to see in the top panels, but can be seen in the bottom ones. Note that in the last time step we have no information whether the segments will flow, merge or collapse, so we just choose to show them as flow segments.

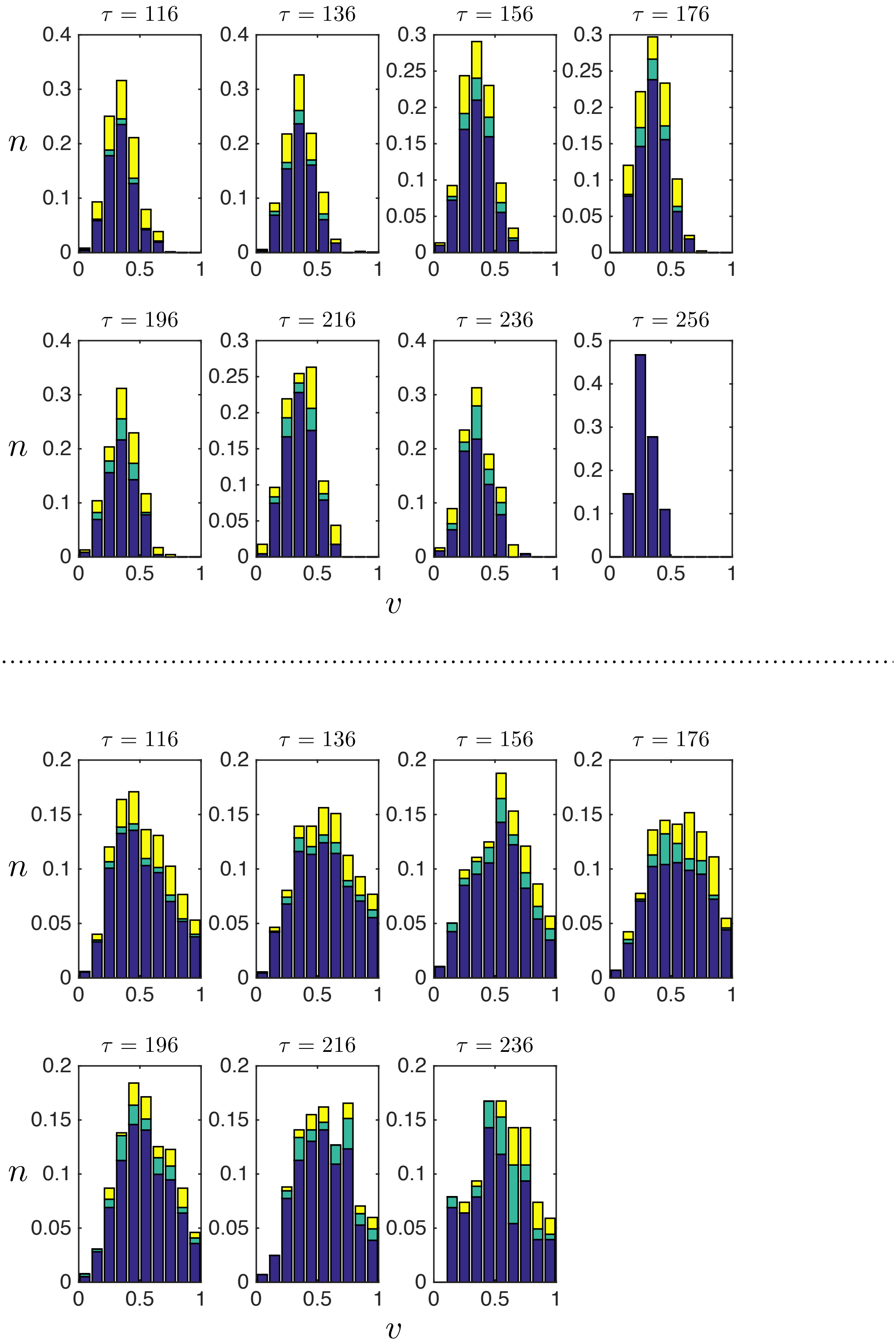

FIG. 9: These histograms show the velocity v distribution of the segments (top) and monopoles (bottom) during their evolution, for radiation and $\beta = 0.35$. The velocities are binned in 10 bins with uniform width. The color code is analogous to that of Fig. 8: blue corresponds to strings that do not interact with other strings before the next time-step (flow), green is for strings which merge with other segments and yellow is for strings that disappear before the next time-step because the segment collapses. Note that in the last time step of segment velocities we have no information whether the segments will flow, merge or collapse, so we just choose to show them as flow segments. Note also that unlike in the segment case, where the velocity has been calculated *forward* and *backward*, for monopoles we have only calculated the velocity *forward*, and therefore we do not have information to compute the velocity at the last time step.

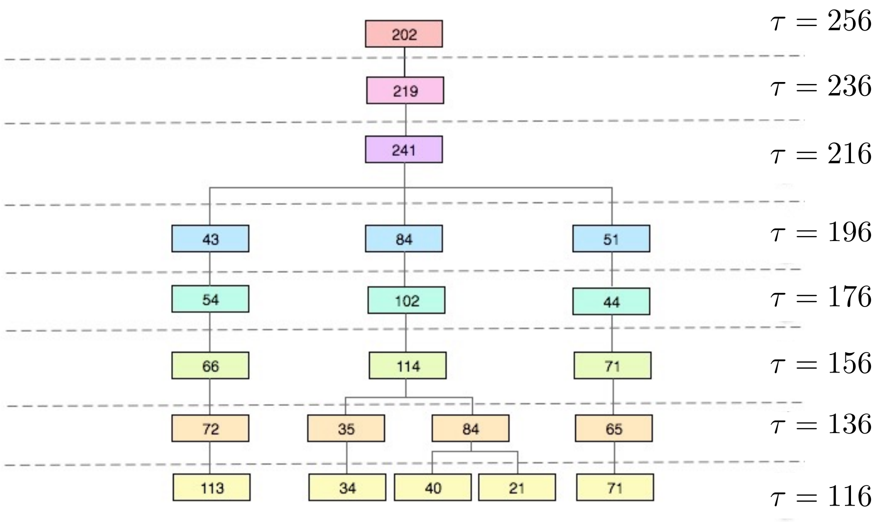

FIG. 10: The “family tree” of a segment for $\beta = 0.35$ in radiation. The number inside the box denotes the length of each segment, and time runs upwards.