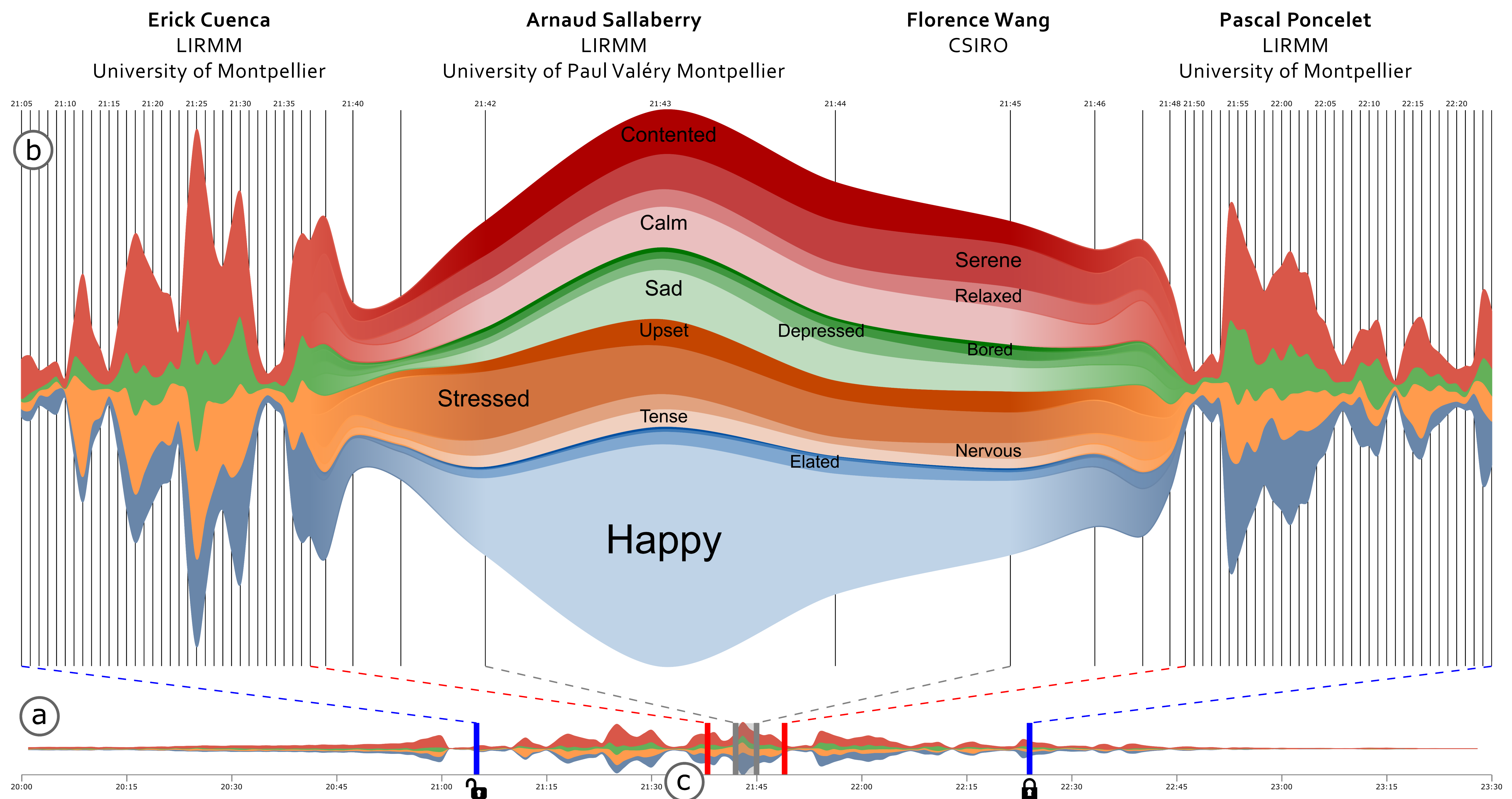


# Visualizing Hierarchical Time Series with a Focus+Context Approach



**Fig.1.** (a) An **overview** depicts time series in a high level of abstraction. (b) **Multiresolution view** depicts time series in different levels of abstraction. (c) **Controller** links the overview and the multiresolution view.

When dealing with several time series scalability problem overcome. **To solve this problem, multiple time series can be organized into a hierarchical structure.** We introduce a Streamgraph-based approach to convey this hierarchical structure. Based on a focus+context technique, our visualization allows time series exploration at different granularities (e.g., from overview to details).

## CONTRIBUTIONS

- A **Streamgraph-based** approach to convey the hierarchical structure of multiple time series.
- A **multiresolution view** to depict the hierarchical organization of time series at different levels of abstraction (i.e., aggregation/disaggregation of time series).

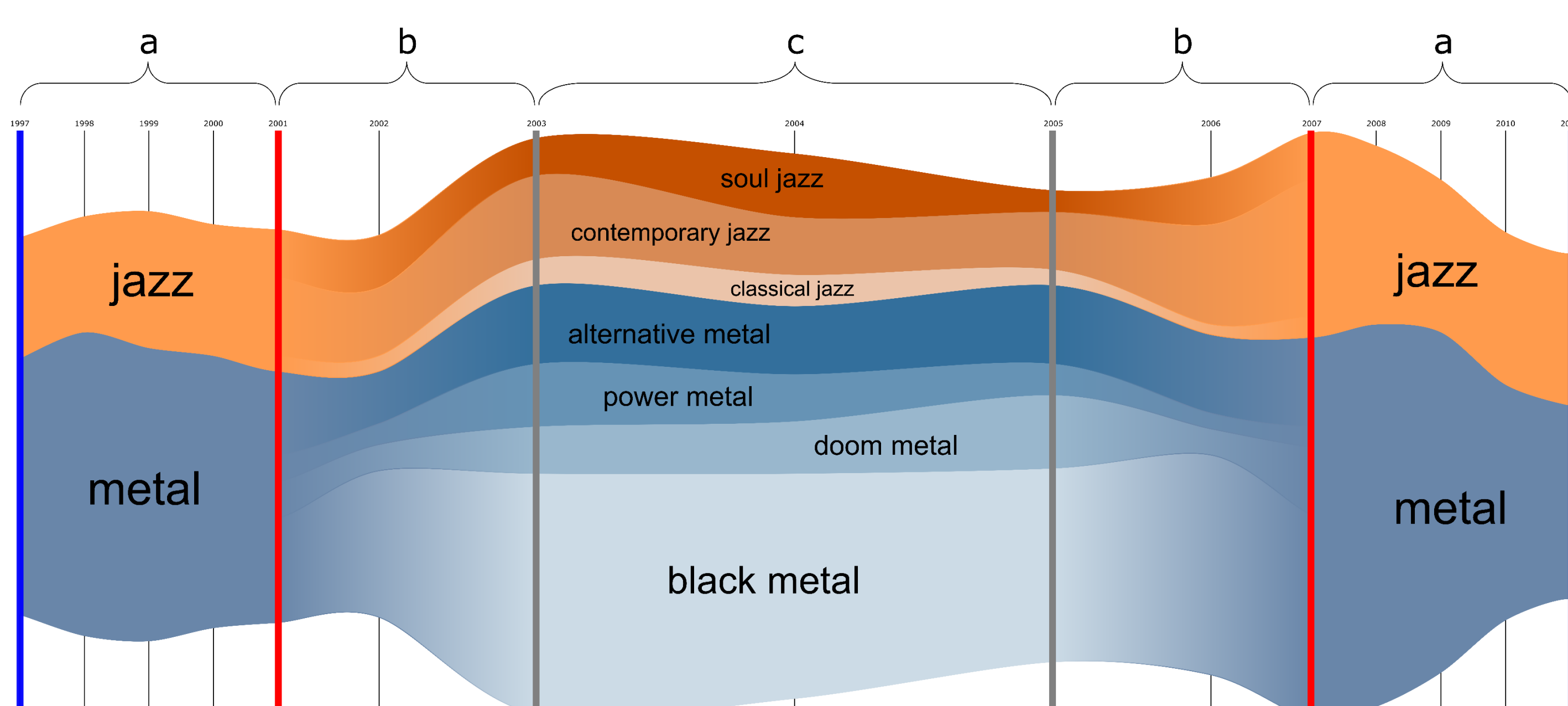
## APPROACH

### OVERVIEW

**Fig.1.** (a) shows a Streamgraph of the entire multiple time series in a high level of abstraction. The highest level represents the top in the hierarchy structure and the thickness of a layer conveys the sum of time series in the group.

### MULTIRESOLUTION VIEW

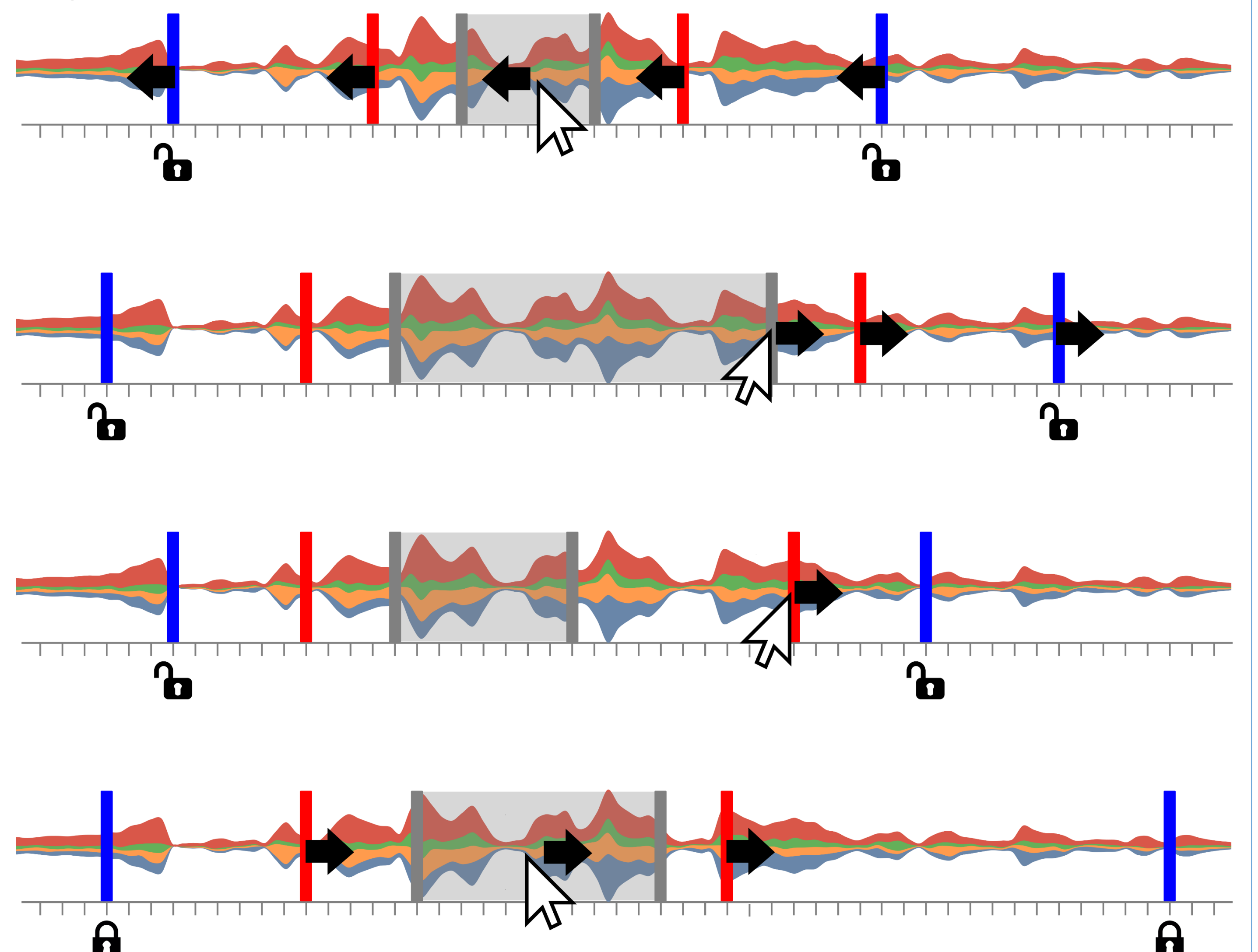
This view depicts time series on different levels of granularity (the top and the lowest level of the hierarchy in one view).



**Fig.2.** (a) **context-areas** depict the top level of the hierarchy, (c) **detailed-area** depicts the lowest level of the hierarchy, and (b) **transition-areas** depict the transition between the context-area to detailed-area, and vice versa. Color interpolation is used in this area.

### CONTROLLER

This movable/collapsible tool is designed over the overview to handle the intervals of time used by areas in the multiresolution view.



**Fig.3. Custom configuration.** Context-areas are handled by the **blue lines**. Transition-areas are handled by the **red lines**. Detailed-area by **grey lines**.

