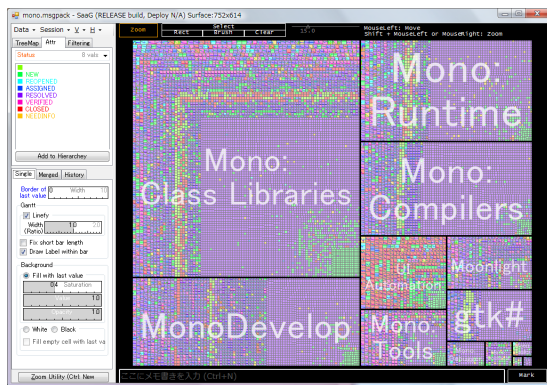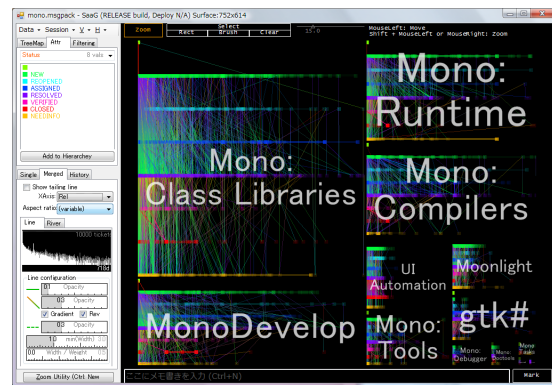# Panoramic View of Large-scale Activity Data

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| (a) Polyline charts in Tiling mode | (b) Polyline charts in Overlapping mode |

Figure 1: *Screen shot, in which about 20,000 tickets are displayed as a treemap. All tickets are categorized by Product.*

1. Introduction

Our challenge is to help understand the activities in a large-scale organization such as a big company. To determine unknown characteristics, a wide-ranging observation of activities is essential, and therefore some panoramic view of activities should be useful. Our technical goal is to develop a panoramic view of activities to help users understand them.

2. Our Approach

We adapted tickets of the issue tracking system (ITS) as activity target data. The set of tickets comprises a hierarchical structure as a global structure and every ticket has a temporal structure as a local structure. Our problem is how to combine a representation of the global structure with a representation of the local structures.

Representation of Global Structure We adapted Treemap [Shn06] to express the global structure of tickets. A rectangular area is assigned to a ticket or a group of tickets. Treemap can represent quantitative data by the sizes of the rectangles. For example, we can express a different work load (in other words, the number of update times) by the size of the rectangles.

Representation of Local Structures To express the time change of attribute values of tickets, we implemented two types of charts: (1) A Gantt chart is a widely used chart to express the progress of projects. (2) A polyline chart is a variation of a Gantt chart. It uses polygonal lines instead of horizontal bars.

Representation of a Group of Tickets We developed three types of modes for groups of tickets: (1) In the tiling mode, a rectangle is assigned to each ticket. A ticket chart is drawn in the rectangular area with a background color expressing the current status of the ticket (see Figure 1(a)). (2) In the overlapping mode, all charts for tickets in a group are drawn in piles in an area assigned to the group (see Figure 1(b)). (3) In the stacking mode, tickets with the same attribute value are collectively drawn like ThemeRiver.

We implemented a tool to manipulate the visual representation and performed a ticket analysis with the tool. The objective of the analysis was a Mono project, which is a big OSS project including tens of thousands tickets. With the tool, we could observe both quantitative and temporal aspects of activities simultaneously.

References

[Shn06] SHNEIDERMAN B.: Discovering business intelligence using treemap visualizations. *BeyeNETWORK, http://www.b-eye-network.com/view/2673* (April 2006). Online. 1