Table 4 shows the results for some quantitative experiments on the effectiveness of the messages selected for tracing by our method. The first column shows the utilization of a 32-bit trace buffer. It is the total width of the messages selected for tracing as a percentage of the width of the trace buffer. WP is the result for messages selected after all four steps of our message selection methodology. Whereas WoP is the result for messages selected without the fourth step to fill up the left over trace buffer width with smaller sub-groups of unselected large messages. The second column shows the LTS state coverage. It is the percentage of LTS states over which we have visibility through one of the selected messages. The third column shows LTS path localization. For a post-silicon execution and the sequence of messages recorded in the trace buffer, we identify the paths in the LTS with similar message sequence signature. A path here is from the start state to end state of the LTS. The number of such paths as a percentage of the total number of paths in the LTS is defined as LTS path localization.

The histograms in Figure 5 show the information gain and functional spec coverage (define what is functional spec coverage in the next line. Is it the LTS state coverage?) achieved for a candidate message set for tracing on the y axis. On the x axis is the number of messages in the message set. At any stage the total width of the messages in the message set is less than the trace buffer width of 32-bit. The message set with highest information gain is selected for tracing. The Figure shows the histograms for all three scenarios. We can see that the information gain of message sets increases as the number of messages in the set increases which is expected as more messages should in general give higher visibility. The functional spec coverage also increases with information gain of a message set. Thus the message set with highest information gain selected for tracing also has the highest functional spec coverage.

Comment: Check if ‘information gain’ or ‘mutual information’ should be used in the paragraph above to be consistent across the paper.