

Original Articles

## Continuity Adjustment for Control Charts for Attributes

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**摘要** A unified approach is proposed for making a continuity adjustment on some control charts for attributes, e.g., np-chart and c-chart, through adding a uniform (0, 1) random observation to the conventional sample statistic (e.g., (npi)-circumflex and c\_i). The adjusted sample statistic then has a continuous distribution. Consequently, given any Type I risk  $\alpha$  (the probability that the sample statistic is on or beyond the control limits), control charts achieving the exact value of  $\alpha$  can be readily constructed. Guidelines are given for when to use the continuity adjustment control chart, the conventional Shewhart control chart (with  $\pm 3$  standard deviations control limits), and the control chart based on the exact distribution of the sample statistic before adjustment.

**关键词** [control charts for attributes](#) [continuity adjustments](#)

分类号

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**Abstract** A unified approach is proposed for making a continuity adjustment on some control charts for attributes, e.g., np-chart and c-chart, through adding a uniform (0, 1) random observation to the conventional sample statistic (e.g., (npi)-circumflex and c\_i). The adjusted sample statistic then has a continuous distribution. Consequently, given any Type I risk  $\alpha$  (the probability that the sample statistic is on or beyond the control limits), control charts achieving the exact value of  $\alpha$  can be readily constructed. Guidelines are given for when to use the continuity adjustment control chart, the conventional Shewhart control chart (with  $\pm 3$  standard deviations control limits), and the control chart based on the exact distribution of the sample statistic before adjustment.

**Key words** [control charts for attributes](#) [continuity adjustments](#)

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