A Framework for Automatic Tool Selection in Integrated CAPP for Sheet Metal Bending

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Abstract. Sheet metal bending is a metal forming process, in which flat sheets are bent along straight bend lines in a specific bending sequence to form three-dimensional parts. A large number of tools with different characteristics can be used in this process. The task to choose the right tooling for a requested sheet metal part is however one of the bottle necks in process planning. An inefficient tool selection may result in failure of finding a feasible bending sequence. In previous work, methodologies for tool selection and optimization have been proposed. The presented paper describes a framework to implement these methodologies into a system that allows automatic tool selection in consistent consideration of bend sequencing. As a result, automated and optimized tool selection for sheet metal bending is achieved, as illustrated by performance test results for a robust software implementation.