Towards the Exchange of Parametric Bridge Models using a Neutral Data Format

While there are mature data models for exchanging semantically rich building models, no means for exchanging bridge models using a neutral data format exist so far. A major challenge lies in the fact that a bridge’s geometry is often described in parametric terms, using geometric constraints and mathematical expressions to describe dependencies between different dimensions. Since the current draft of IFCBridge does not provide a parametric geometric description, this paper presents a possible extension and describes in detail the object-oriented data model proposed to capture parametric design including geometric and dimensional constraints. The feasibility of the concept has been verified by actually implementing the exchange of parametric models between two different computer-aided design (CAD) applications.

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