Towards integrated performance-driven generative design tools

Abstract:
Performance-driven generative design methods are capable of producing concepts and stimulating solutions based on robust and rigorous models of design conditions and performance criteria. Using generative methods, the computer becomes a design generator in addition to its more conventional role as draftsperson, visualizer, data checker and performance analyst. To enable designers to readily develop meaningful input models, this paper describes a preliminary integration of a generative structural design system, elfForm, and an associative modeling system, Generative Components, through the use of XML models. An example is given involving generation of 20 lightweight, cantilever roof trusses for a saddle shaped stadium roof modeled in Generative Components. Synergies between the two systems and future extensions are discussed.

Stichworte:
Generative design; Parametric and associative geometry; Design optimization; Performance-based design; Computer aided design tools

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