Abstract

Generating Peranakan variations
using a Set Grammar Implementation

by

Sambit Datta
Master of Architecture in
NATIONAL UNIVERSITY of SINGAPORE

Dr. Milton Tan, Supervisor

The topdown transformational process of generative design is an important paradigm in the formal modelling of design, beyond delineation. Design space description formalisms enable the encoding and representation of design knowledge in a formal, executable and constructive manner. They describe entire design spaces, rather than individual designs using the syntactic properties of geometric shapes. Description formalisms can be used to augment conventional geometric modellers with generative capabilities to rapidly develop alternative variations of designs. Firstly, a scheme for representing shapes is modelled on the set grammar formalism. The design world is restricted to a two dimensional universe of rectangular polygons. Secondly, the Peranakan Grammar is defined using the shape representation scheme to encode the distinctive layouts of pre-war shophouses in Singapore. A rule interpreter, Peran, for applying the rules of the Peranakan Grammar is outlined. Finally, sample derivations of shophouse layouts in the language of the grammar are presented by using the Peranakan Grammar as a rulebase.