DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
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Interactions between Syntax and Semantics

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Abstract: The traditional language design model involves the development of a programming semantics, based on some model of computation; which is translated into an abstract syntax, with a "meaning" mapping the syntax to the semantics; followed by a concrete syntax, representing the abstract syntax. This notion of distinct stages, each of which follows its predecessor, has the same flaws as the waterfall software development model. That is, information obtained at later stages can lead to the realization that better choices should have been made earlier on. The waterfall model was revised to include feedback loops at each stage, formalizing what everyone knows: that design is an iterative process. The language design model has not been formally revised in a similar manner, despite everyone's recognition that it has similar characteristics. This talk will focus on examples of how semantics design can draw upon syntax as well as vice versa, to the advantage of both.

Joan Boyar