**CS846 Paper Review Form - Winter 2012**

**Reviewer: Dina Omar Zayan**

**Paper Title: Silver: an Extensible Attribute Grammar System.**

**Author(s):**

**Eric Van Wyk**

**Derek Bodin**

**Jimin Gao**

**Lijesh Krishnan**

**1) Is the paper technically correct?**

 **[X] Yes**

 **[ ] Mostly (minor flaws, but mostly solid)**

 **[ ] No**

**2) Originality**

 **[ ] Very good (very novel, trailblazing work)**

 **[X] Good**

 **[ ] Marginal (very incremental)**

 **[ ] Poor (little or nothing that is new)**

**3) Technical Depth**

 **[ ] Very good (comparable to best conference papers)**

 **[X] Good (comparable to typical conference papers)**

 **[ ] Marginal depth**

 **[ ] Little or no depth**

**4) Impact/Significance**

 **[ ] Very significant**

 **[X] Significant**

 **[ ] Marginal significance.**

 **[ ] Little or no significance.**

**5) Presentation**

 **[ ] Very well written**

 **[ ] Generally well written**

 **[X] Readable**

 **[ ] Needs considerable work**

 **[ ] Unacceptably bad**

**6) Overall Rating**

 **[ ] Strong accept (award quality)**

 **[X] Accept (high quality - would argue for acceptance)**

 **[ ] Weak Accept (borderline, but lean towards acceptance)**

 **[ ] Weak Reject (not sure why this paper was published)**

**7) Summary of the paper's main contribution and rationale for your recommendation. (1-2 paragraphs)**

The objective of the work described in this paper is to develop Silver as an extensible full-featured attribute grammar specification language which includes several general purpose and domain specific language features to address the various aspects of a problem. The paper observes that although DSL offer several advantages, it also offers several challenges such as the cost of designing and implementing a DSL, and the difficulty between finding a balance between domain-specifity and general purpose language constructs. The paper is specially interested in techniques that lead to a high modularity degree in the composition of language specifications. This is achieved through integrating the “Forwarding” technique with attribute grammar allowing aspects of new semantic constructs to be implicitly specified via a translation to the host language. They could also be explicitly specified through traditional attribute definitions.

The paper discusses how Silver is developed. It describes a core attribute grammar language serving as the host language, and language extensions implemented as specified attribute grammar fragments to easily add general purpose and domain specific features. It also shows how the Silver module system would be used to compose both the host language and language extensions to reach the full featured version. Fundamental features are discussed in details, but with a difficult writing style. The paper reports related work by other research groups, but fails to mention any limitations about Silver and doesn’t provide details about future work.

**8) List strengths of the paper.**

S1: The paper focuses on the implementation of a declarative system that supports modular language design which in turn ensures a systematic and incremental development.

S2: The paper provides an adequate mechanism for supporting data flow analysis of imperative programs through extending both general purpose and domain specific features.

S3: The integration of the “Forwarding” technique into attribute grammars to achieve better modularity and ease-of-composition language features.

S4: The paper relates Silver with other AG systems -such as LRC, Eli, etc- which provide similar features and points out the differences and their impact.

**9) List weaknesses of the paper.**

W1: The paper doesn’t show any limitations for the developed language.

W2: The author mentions in the introduction section that determining the scope of silver and how to include features in a cost-effective manner was an important consideration, and then fails to mention anything about how his implementations were cost-effective.

W3: The writing style was ineffective in grasping attention and curiosity for the topic being presented; forward referencing of main definitions and concepts wasn’t helpful.