CIS 525 Software Development of Parallel and Distributed Systems Fall 2008

Lecture 11: Tuesday, October 7, 2008

1. **Net morphisms and their applications:**
   - Definitions of net morphisms, epimorphisms, folding, epifoldings
   - Vicinity preserving morphisms
   - Definitions of local environments of places and transitions: loc(p), loc (t)
   - Net morphisms vs. concepts of refinement and abstraction
   - Three Analysis methods for Petri nets - summary.

Lecture 12: Thursday, October 9, 2008

1. **Vicinity preserving morphisms:**
   a) S-elements and T-elements of a net.
   b) Structural and behavioral properties of vicinity preserving nets.
   c) Software design tool development based on net transformations and net morphisms.
   d) "Dell electronic store" example with vicinity preserving morphisms.

2. Analysis of a Producer-consumer system – Colored Petri net model.
3. Analysis of Master-Slave System – Colored Petri net model
4. Process nets for Concurrent Vending Machine.
5. Basic reduction kit for P/T nets.
6. Using reductions of Petri nets to prove behavioral properties of systems.
7. Homework #2 returned with grades.

Textbook relevant sections:

1. Net morphisms, net foldings are discussed in sub-chapters 2.4 and 2.5 of the textbook as well as in several course handouts such as example of "car renting agency" and "Dell electronic store".
2. Net morphisms in terms of vicinity morphisms are also discussed in a separate hnandout on this topic.