

Computational Linguistics (CS579)

Qualifying Exam, January 2015
Computer Science Department, KAIST

Total: 100 points

Name: _____

Problem 1. (20) Explain the basic principles of **grammar engineering** and show how they can be used for the design of a large-scale grammar architecture.

Problem 2. (20) Explain how the **Keller storage** works in generating readings for the following sentence: "Mia knows every owner of a hash bar."

Problem 3. (20) The **tableau systems** can be used not only as theorem provers but also as model builders. Use the propositional formula $(p \wedge q) \rightarrow (r \vee s)$ to demonstrate why.

Problem 4. (20) Explain how the notions of **informativity** and **validity**, and those of **consistency** and **validity**, are related to each other, respectively.

Problem 5. (20) Use **the free variable tableau method** to prove the following formula:

$$\forall x \exists y \forall z \exists w (love(x,y) \vee \neg love(w,z))$$