The dog cannot find the bone it hid from the other dogs.

**Preprocessing**

**Tokenizing, Lemma, MWE Labeling, NER Labeling**

**Any Sequence Encoder with Any Embedding**

**Node Identification With decomposed label tuple**

Lemma Classifier (with copy) | Category Classifier (with copy) | POS Classifier | Sense Classifier

<dog /d1> | **<possible-02 :polarity ->** | … | <find-01> | … | <hide-01> | … | <dog /d2>

Two Separate Encoders for Head and Dep Node(with bi-lexicon) Encoding

**Edge Identification Multiple Pass Biaffine Attention[1]**

**<possible-02, d1>**

…

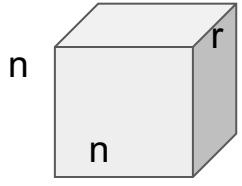
**<hide-01, d2>**

**<possible-02, find-01>**

**<possible-02, hide-01>**

n * n

Deep Biaffine Classifier[1]




$$E \in \mathbb{R}^{n*n*r}$$

Root Encoder with MLP(with anchoring word)

**Root Identification**

$$R \in \mathbb{R}^{n}$$

**MCSG(greedy) Connectivity**

From root node, greedily select edges until all nodes are connected, force connecting some wrongly predicted NULL edge