

2003 Paper 12 Question 11

Natural Language Processing

(a) Define the following terms in morphology:

(i) morpheme

(ii) affix

[4 marks]

(b) In English morphology, 'y' maps to 'ie' when preceded by a consonant and followed by the affix 's'. Give a finite state transducer that implements this spelling rule, explaining the notation that you use. Your transducer should accept the following pairings:

party/party[^]s, parties/party[^]s, partying/party[^]ing

It should reject:

partys/party[^]s, toies/toy[^]s

[12 marks]

(c) The 'y' to 'ie' mapping also applies when the affix is 'ed'. Briefly discuss how this might be handled, taking into account that the morphology system should accept parted/party[^]ed and not partieed/party[^]ed. [4 marks]