

# Homework # 1

August 28, 1998

Consider the formula

$$(*) \quad (p \wedge \sim q) \supset (\sim p \vee r) .$$

1. Exhibit a formation sequence for (\*).
2. List the immediate subformulas of (\*), their immediate subformulas, etc., i.e. all subformulas of (\*).
3. Calculate the degrees of (\*) and its subformulas.
4. Display the formation tree of (\*).
5. Write the formula (\*) according to various notation systems:
  - (a)  $F_0$ – $F_4$  (Smullyan page 5).
  - (b)  $F'_0$ – $F'_2$  (page 6).
  - (c)  $F''_0$ – $F''_2$  (pages 6–7).
  - (d) ordered pairs and triples (page 7).
  - (e) Polish notation.
  - (f) reverse Polish notation.