

# (P) A Matter of Horn Clauses (1/1)

## P1. Rules:

$V(\text{help})$ .  
 $V(\text{let})$ .  
 $N(\text{John})$ .  
 $N(\text{Kim})$ .  
 $S(xy) :- V(x), N(y)$ .  
 $S(xy) :- S(x), S(y)$ .

## Sample derivation:

$S(\text{let Kim}) :- V(\text{let}), N(\text{Kim})$ .  
 $S(\text{let John}) :- V(\text{let}), N(\text{John})$ .  
 $S(\text{let Kim let John}) :- S(\text{let Kim}), S(\text{let John})$ .  
 $S(\text{help John}) :- V(\text{help}), N(\text{John})$ .  
 $S(\text{help John let Kim let John}) :- S(\text{help John}), S(\text{let Kim let John})$ .

## P2. Rules:

$N(\text{Jan})$ .  
 $N(\text{Hans})$ .  
 $D\text{dat}(\text{em})$ .  
 $D\text{acc}(\text{de})$ .  
 $V\text{dat}(\text{h\u00e4lfe})$ .  
 $V\text{acc}(\text{laa})$ .  
 $V P(xy, z) :- D\text{dat}(x), N(y), V\text{dat}(z)$ .  
 $V P(xy, z) :- D\text{acc}(x), N(y), V\text{acc}(z)$ .  
 $V P(wy, xz) :- V P(w, x); V P(y, z)$ .  
 $S(xy) :- V P(x, y)$ .

## Sample derivation:

$V P(\text{em Jan}, \text{h\u00e4lfe}) :- D\text{dat}(\text{em}), N(\text{Jan}), V\text{dat}(\text{h\u00e4lfe})$ .  
 $V P(\text{em Hans}, \text{h\u00e4lfe}) :- D\text{dat}(\text{em}), N(\text{Hans}), V\text{dat}(\text{h\u00e4lfe})$ .  
 $V P(\text{em Jan em Hans}, \text{h\u00e4lfe h\u00e4lfe}) :- V P(\text{em Jan}, \text{h\u00e4lfe}), V P(\text{em Hans}, \text{h\u00e4lfe})$ .  
 $V P(\text{de Hans}, \text{laa}) :- D\text{acc}(\text{de}), N(\text{Hans}), V\text{acc}(\text{laa})$ .  
 $V P(\text{de Hans em Jan em Hans}, \text{laa h\u00e4lfe h\u00e4lfe}) :- V P(\text{de Hans}, \text{laa}), V P(\text{em Jan em Hans}, \text{h\u00e4lfe h\u00e4lfe})$ .  
 $S(\text{de Hans em Jan em Hans laa h\u00e4lfe h\u00e4lfe}) :- V P(\text{de Hans em Jan em Hans}, \text{laa h\u00e4lfe h\u00e4lfe})$ .

