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

**P1.** Rules:

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

Sample derivation:

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

**P2.** Rules:

- \( N(\text{Jan}) \).
- \( N(\text{Hans}) \).
- \( Ddat(\text{em}) \).
- \( Dacc(\text{de}) \).
- \( Vdat(\text{hälfe}) \).
- \( Vacc(\text{laa}) \).
- \( V P(xy, z) \leftarrow Ddat(x), N(y), Vdat(z) \).
- \( V P(xy, z) \leftarrow Dacc(x), N(y), Vacc(z) \).
- \( V P(wy, xz) \leftarrow V P(w, x); V P(y, z) \).
- \( S(xy) \leftarrow V P(x, y) \).

Sample derivation:

- \( V P(\text{em Jan, hälfe}) \leftarrow Ddat(\text{em}), N(\text{Jan}), Vdat(\text{hälfe}) \).
- \( V P(\text{em Hans, hälfe}) \leftarrow Ddat(\text{em}), N(\text{Hans}), Vdat(\text{hälfe}) \).
- \( V P(\text{em Jan em Hans, hälfe hälfe}) \leftarrow V P(\text{em Jan, hälfe}), V P(\text{em Hans, hälfe}) \).
- \( V P(\text{de Hans, laa}) \leftarrow Dacc(\text{de}), N(\text{Hans}), Vacc(\text{laa}) \).
- \( V P(\text{de Hans em Jan em Hans, laa hälfe hälfe}) \leftarrow V P(\text{de Hans, laa}), V P(\text{em Jan em Hans, hälfe hälfe}) \).
- \( S(\text{de Hans em Jan em Hans laa hälfe hälfe}) \leftarrow V P(\text{de Hans em Jan em Hans, laa hälfe hälfe}) \).