Why Non-Projectivity Matters?

- CFGs cannot handle non-projective constructions:

  Think in Dutch that John **grass** saw **being-cut**!

- No way to glue these crossing dependencies together:
  - Lexical choice:

    $$X \rightarrow < \text{grass } X \text{ being-cut}, \text{trávu } X \text{ sekat} >$$
  - Agreement in gender:

    $$X \rightarrow < \text{John } X \text{ saw}, \text{Jan } X \text{ viděl} >$$
    $$X \rightarrow < \text{Mary } X \text{ saw}, \text{Marie } X \text{ viděl}\mathbf{a} >$$

- Phrasal chunks can memorize <u>fixed</u> sequences containing:
  - the non-projective construction
  - and all the words in between! ($\Rightarrow$ extreme sparseness)