Stupid Baselines for Musical Supertagging

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Introduction

- Tried applying C&C supertagger to chords
- Need to experiment with smoothing
- Before that, need some a really simple supertagging baseline
- Here are some ideas for daft models

The Input

- Our input is chord sequences: e.g.

  CM7 A7 Dm7 G7 CM7

- Don't want to model this directly

  GM7 E7 Am7 D7 GM7

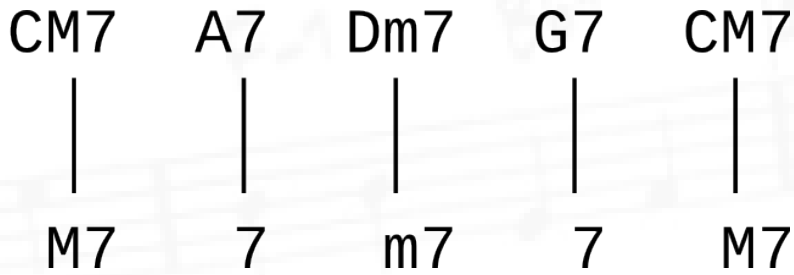
  $\equiv$

  CM7 A7 Dm7 G7 CM7

- Should receive the same interpretation model

Stupid Idea

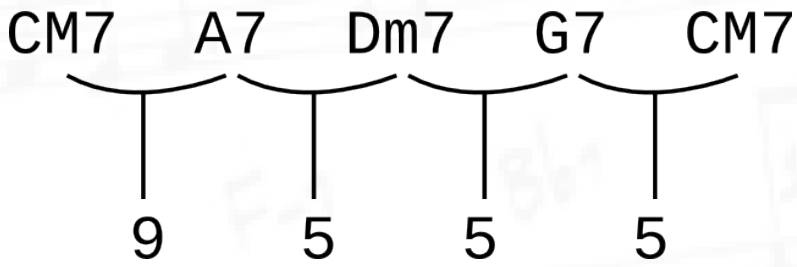
- Important information in chord types
- Just ignore pitches



- But interpretation depends on pitches of surrounding chords

Slightly Less Stupid Idea

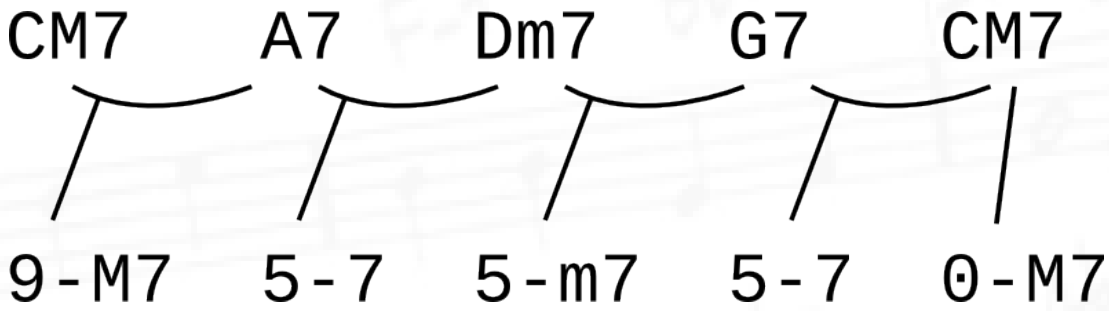
- Only look at intervals between roots



- Number of semitones between chords
- Intervals important to interpretation
- 5 – down a perfect 5th, likely to be dominant-tonic
- 7 – down a perfect 4th, likely to be subdominant-tonic

Both Together

- Could use both for observations
- Observation consists of type of chord and interval to next chord



- Used this for C&C input

Model 1

- Assign most frequent category to every chord
- This is `D` category – dominant interpretation
- $\sim$50% of chords
- Won't be able to parse anything

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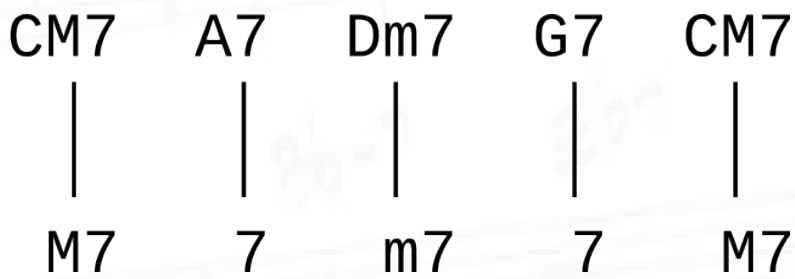
Model 2

- Assign tonic category to every chord
- Second most common category
- Should parse everything – every chord in a new key!
- Will get lots of correct roots
- Will get mostly incorrect functions

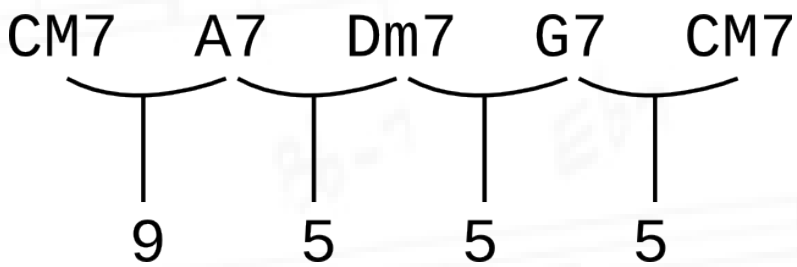
Model 3

- Pick highest unigram probability, modelling only chord type
- E.g. all M7 chords get tonic interpretation
- All 7 chord get dominant interpretation
- Will get more correct functions than model 2
- Will get fewer parses



Model 4

- Pick highest unigram probability, modelling only intervals
- E.g. 5, perfect fifth down, will get dominant interpretation
- Good for some common cases
- Will get more parses than model 3, but incorrect functions
- Will make a mess of tonics



Model 5

- Pick highest unigram probability, modelling intervals and chord types
- Uses all available information
- Probably better than model 3 (types only)
- Getting closer to C&C model
- Might already start suffering from data sparsity