

Formalizing AMR Inference via Hybrid Logic Tableaux

CL Masters Thesis Defense

Eli Goldner

July 27, 2021

FHTL Tableau Example

- (1)
- (2) $@_s(\exists x)[P((\exists y)[f(x, y) = f(y, x)]) \vee \neg(\exists z)[x = z]]$
- (3) $@_sP((\exists y)[f(s_1, y) = f(y, s_1)]) \vee \neg(\exists z)[s_1 = z]$
- (4) $@_sP((\exists y)[f(s_1, y) = f(y, s_1)])$ $@_s\neg(\exists z)[s_1 = z]$
- (5) $@_sPt$ $@_s\neg[s_1 = s_1]$
- (6) $@_t(\exists y)[f(s_1, y) = f(y, s_1)]$ $@_s[s_1 = s_1]$
- (7) \dots \otimes

Model Checking Example

- *Every computer will be located at a desk.*

- AMR with quantification and tense:

```
(s / scope
  :pred (b / be-located-at-91 :ongoing -
    :complete +
    :time (a / after
      :op1 (n / now))
  :ARG0 (c / computer)
  :ARG1 (d / desk
    :quant (e / every)))
:ARG0 d
:ARG1 c)
```

- *FHTL* translation:

$$@_{now}(\forall y)[desk(y) \rightarrow (\exists x)[computer(x) \wedge F(be-located-at-91(x, y))]]$$

Model Checking Example

Let's define a really really small model $(T, \mathcal{R}, (D_t)_{t \in T}, I_{nom}, (I_t)_{t \in T})$: