9.3

语回众不合法。语句3x AsHighAs (x, Everest)为次与Everest等高,显然将 χ 实例 化为 Everest 无实际意义。

语目b、C合法。语语自b、C分别母x实例化了1次、2次,都是合法实例化。

9.4

6, = { A/x} W, = { P(A, B, B), P(x, y, Z)}. 6, = { P(A, B, B), P(A, y, Z)}. a.

 $6z = \{B/y\}$ $W_2 = W_1 \cdot 6z = \{P(A,B,B), P(A,B,Z)\}.$

 $63 = \{B/Z\}$ $W_3 = W_2 \cdot 63 = \{p(A,B,B),\}$

6= 61 · 62 · 63 = {A/X, B/Y, B/Z}为最一般含一置换

w.= {Q(y, G (A,B), Q(G(X,X),Y)}. 6. = {Q(G(X,X), G(A,B), Q (G(x,x), G(xx) 对于 G(A,B), G(X,X), 不主义使得不存在置换使复合一 b. 因此无最一般合置奖

C. 6. = { y/x} W1 = folder(father(y), y), older(father(x), John)f. = {older(father(y), y), older(father(y), John)f. = {older(father(y), John)f.

62 = { John /y} W2 = W1.62 = { older (futher (John), John}.

6 = 6, 0 62 = { John/x, John/y}.

6 才最 一般后一置驶

 $6_1 = \{ \text{ Father } (y) / x \} \cdot W_1 = \{ \text{ knows } (f(y), y), \text{ knows } (x, x) \} = \{ \text{knows } (f(y), y), \}$ knows (fly), fly)}. d. 对于y、fly), 不存在 y= fty) Father (y) 图以无最一般台-置换

- 则 \x =y P(x,y) 成立; =q P(q,q) 不成立。 Q. 设 P(X,y)表示 X>Y
- 将前提 skolen化: P(X,f(X)) 目标取否定: Yy ~ P(好). b. 如果可以合一,则者归结为NULL
- 前提 sko len化: P(X, Sko) 目标取否,在置换 { q/s/co, x/sko}作用下,由选为 NULL C.
 - 对某假设 =x P以, 若证明 P(A) d. 培愈提skolen化: P(sko) 目标取否,在置换 f sho/A f 作用下, 归选为NLLL.

9.19

- a. (i) 有解 {John/y}
 - (ii) 有解(John/y}.
 - (iii) 有解 {}
 - (iv) 从不终止
- b. 不能证明. KB仅图3通过图系来判断祖先的归则决见则,并观名通过其他采属 关系判断是否为祖先的规则。
- C. 仍无法证明

9.23.

 $\forall x \ \text{howrse}(x) \Longrightarrow \text{Animal}(x)$ a. 前题

∀x.h hourse (x) ∧ head of (hix) => In Animally) ∧ head of (hiy) 徒论

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6.
        horse(x) =>Animal(xv) A
(サな horseは) => Animal(ス))人~(サx.h horse(x)) head of (hix) => ヨy Animal (y) ハ head of (hiy))
(tx whorse(x) VAnimal(x)) \ ~ (N tx, h horse(x) \ headof(h,x) V \ Animally) \ headof(h,y))
(Vx whorse(x) V. Animal(x)) \ \ \ (N \ DZ, h horse (\mathbb{Z}) \) head of (h, \mathbb{Z}) \ V (\(\frac{1}{2}\) \) Animally ) \ \ head of (h, \mathbb{Y})))
[VX ~horse(又) V Animal(双) 人 [地,h horse(z) ) headof (hiz)) 人 (v I (y) Animally) 人 heady (hiy))
  (whorse(x) VAnimal (x)) A horse (Z) A head of (h,Z) A ( by NAnimally) V Nhead of (h,y)
(~horse(x) VAnimal(x)) 1 horse(Z) 1 headof (hiz) 1 (~Animal(y) V~ headof (hiy))
                                                                    wheadof (h,y) V N Ansmally)
                                                  headof(hiZ)
                                      horse区)
       whorse (x) V Animalix)
                                                          NAmmal (Z).
                       Animal (X)
                                        NULL
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西比可由削足归结指导出结论.