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theory Hnr_Rules_If
  imports Hnr_Base Keep_Drop Norm Merge
begin

lemma hnr_if [hnr_rule]:
  assumes
    "hnr ( $\Gamma$  * id_assn c ci) ai  $\Gamma_a$  a"
    "hnr ( $\Gamma$  * id_assn c ci) bi  $\Gamma_b$  b"
    " $\bigwedge r$  ri. Merge ( $\Gamma_a$  r ri) ( $\Gamma_b$  r ri) ( $\Gamma_c$  r ri)"
  shows
    "hnr
      ( $\Gamma$  * id_assn c ci)
      (if ci then ai else bi)
       $\Gamma_c$ 
      (if c then a else b)"
  apply(rule hnrI)
  using assms(1, 2)[THEN hnrD] assms(3)
  unfolding Merge_def
  apply(sep_auto simp: ent_star_mono id_rel_def split: if_splits)
  by(meson cons_post_rule ent_disjI1 ent_disjI2 fr_refl)+

end

```