7.7.x. Exercise questions

Use derivations to check each of the claims below; if a derivation indicates that a claim fails, describe a structure that divides an open gap.

1. Fa ⇒ ∀x Fx
2. ∀x Rxx ⇒ ∀x Rxa
3. ∀x ¬ Fx ⇔ ¬ ∀x Fx
4. *No widget is a gadget*, *No gizmo is a widget* ⇒ *No gizmo is a gadget*
5. *No widget is a gadget* ⇔ *Not every widget is a gadget*
6. *Everything is either finished or unstarted* ⇒ *Either everything is finished or everything is unstarted*
7. ¬ ∀x ¬ ∀y Rxy ⇒ ∀x ¬ ∀y ¬ Rxy