

I will provide a set of logical rules L1 to L28 and facts F1 to F64. Please select one single logical rule from L1 to L28 and a few facts from F1 to F64 to explain the following statement.

Rules:

- L1:  $\forall A, B, C : r1(B, A) \wedge r1(B, C) \wedge r44(A) \rightarrow r2(A, C)$   
 L2:  $\forall A, B, C : r1(B, A) \wedge r1(B, C) \wedge r43(A) \rightarrow r3(A, C)$   
 L3:  $\forall A, B : r1(A, B) \wedge r44(A) \rightarrow r4(A, B)$   
 L4:  $\forall A, B : r1(A, B) \wedge r43(A) \rightarrow r5(A, B)$   
 L5:  $\forall A, B, C : r1(A, B) \wedge r1(B, C) \wedge r44(A) \rightarrow r6(A, C)$   
 L6:  $\forall A, B, C : r1(A, B) \wedge r1(B, C) \wedge r43(A) \rightarrow r7(A, C)$   
 L7:  $\forall A, B, C, D : r1(A, B) \wedge r1(B, C) \wedge r1(C, D) \wedge r44(A) \rightarrow r8(A, D)$   
 L8:  $\forall A, B, C, D : r1(A, B) \wedge r1(B, C) \wedge r1(C, D) \wedge r43(A) \rightarrow r9(A, D)$   
 L9:  $\forall A, B, C, D : r1(B, A) \wedge r1(B, C) \wedge r1(C, D) \wedge r44(A) \rightarrow r10(A, D)$   
 L10:  $\forall A, B, C, D : r1(B, A) \wedge r1(B, C) \wedge r1(C, D) \wedge r43(A) \rightarrow r11(A, D)$   
 L11:  $\forall A, B, C, D, E : r1(B, A) \wedge r1(B, C) \wedge r1(C, D) \wedge r1(D, E) \wedge r44(A) \rightarrow r12(A, E)$   
 L12:  $\forall A, B, C, D, E : r1(B, A) \wedge r1(B, C) \wedge r1(C, D) \wedge r1(D, E) \wedge r43(A) \rightarrow r13(A, E)$   
 L13:  $\forall A, B, C, D, E, F : r1(B, A) \wedge r1(C, B) \wedge r1(C, D) \wedge r1(D, E) \wedge r1(E, F) \wedge r44(A) \rightarrow r14(A, F)$   
 L14:  $\forall A, B, C, D, E, F : r1(B, A) \wedge r1(C, B) \wedge r1(C, D) \wedge r1(D, E) \wedge r1(E, F) \wedge r43(A) \rightarrow r15(A, F)$   
 L15:  $\forall A, B, C, D, E : r1(B, A) \wedge r1(C, B) \wedge r1(C, D) \wedge r1(D, E) \wedge r44(A) \rightarrow r16(A, E)$   
 L16:  $\forall A, B, C, D, E : r1(B, A) \wedge r1(C, B) \wedge r1(C, D) \wedge r1(D, E) \wedge r43(A) \rightarrow r17(A, E)$   
 L17:  $\forall A, B, C, D, E, F, G : r1(B, A) \wedge r1(C, B) \wedge r1(D, C) \wedge r1(D, E) \wedge r1(E, F) \wedge r1(F, G) \wedge r44(A) \rightarrow r18(A, G)$   
 L18:  $\forall A, B, C, D, E, F, G : r1(B, A) \wedge r1(C, B) \wedge r1(D, C) \wedge r1(D, E) \wedge r1(E, F) \wedge r1(F, G) \wedge r43(A) \rightarrow r19(A, G)$   
 L19:  $\forall A, B, C, D, E, F : r1(B, A) \wedge r1(C, B) \wedge r1(D, C) \wedge r1(D, E) \wedge r1(E, F) \wedge r44(A) \rightarrow r20(A, F)$   
 L20:  $\forall A, B, C, D, E, F : r1(B, A) \wedge r1(C, B) \wedge r1(D, C) \wedge r1(D, E) \wedge r1(E, F) \wedge r43(A) \rightarrow r21(A, F)$   
 L21:  $\forall A, B : r1(B, A) \wedge r44(A) \rightarrow r22(A, B)$   
 L22:  $\forall A, B : r1(B, A) \wedge r43(A) \rightarrow r23(A, B)$   
 L23:  $\forall A, B, C : r1(B, A) \wedge r1(C, B) \wedge r44(A) \rightarrow r24(A, C)$   
 L24:  $\forall A, B, C : r1(B, A) \wedge r1(C, B) \wedge r43(A) \rightarrow r25(A, C)$   
 L25:  $\forall A, B, C, D : r1(B, A) \wedge r1(C, B) \wedge r1(D, C) \wedge r44(A) \rightarrow r26(A, D)$

L26:  $\forall A, B, C, D : r1(B, A) \wedge r1(C, B) \wedge r1(D, C) \wedge r43(A) \rightarrow r27(A, D)$

L27:  $\forall A, B, C, D : r1(B, A) \wedge r1(C, B) \wedge r1(C, D) \wedge r44(A) \rightarrow r28(A, D)$

L28:  $\forall A, B, C, D : r1(B, A) \wedge r1(C, B) \wedge r1(C, D) \wedge r43(A) \rightarrow r29(A, D)$

Facts:

F1:  $r1(\text{lina}, \text{philipp})$

F2:  $r1(\text{lina}, \text{rene})$

F3:  $r1(\text{lina}, \text{florian})$

F4:  $r1(\text{lina}, \text{katharina})$

F5:  $r1(\text{lina}, \text{alina})$

F6:  $r1(\text{emil}, \text{luisa})$

F7:  $r1(\text{emil}, \text{adam})$

F8:  $r1(\text{larissa}, \text{luisa})$

F9:  $r1(\text{larissa}, \text{adam})$

F10:  $r1(\text{paula}, \text{larissa})$

F11:  $r1(\text{paula}, \text{emma})$

F12:  $r1(\text{paula}, \text{selina})$

F13:  $r1(\text{leon}, \text{larissa})$

F14:  $r1(\text{leon}, \text{emma})$

F15:  $r1(\text{leon}, \text{selina})$

F16:  $r1(\text{luca}, \text{philipp})$

F17:  $r1(\text{luca}, \text{rene})$

F18:  $r1(\text{luca}, \text{florian})$

F19:  $r1(\text{luca}, \text{katharina})$

F20:  $r1(\text{luca}, \text{alina})$

F21:  $r1(\text{emily}, \text{felix})$

F22:  $r1(\text{emily}, \text{fabian})$

F23:  $r1(\text{emily}, \text{luca})$

F24:  $r1(\text{benjamin}, \text{felix})$

F25:  $r1(\text{benjamin}, \text{fabian})$

F26:  $r1(\text{benjamin}, \text{luca})$

F27:  $r1(\text{alina}, \text{emil})$

F28:  $r1(\text{alina}, \text{valentina})$

F29:  $r1(\text{alina}, \text{emilia})$

F30:  $r1(\text{johanna}, \text{charlotte})$

F31:  $r1(\text{johanna}, \text{magdalena})$

F32:  $r1(\text{johanna}, \text{emily})$   
F33:  $r1(\text{patrick}, \text{charlotte})$   
F34:  $r1(\text{patrick}, \text{magdalena})$   
F35:  $r1(\text{patrick}, \text{emily})$   
F36:  $r1(\text{marcel}, \text{emil})$   
F37:  $r1(\text{marcel}, \text{valentina})$   
F38:  $r1(\text{marcel}, \text{emilia})$   
F39:  $r43(\text{philipp})$   
F40:  $r44(\text{lina})$   
F41:  $r43(\text{luca})$   
F42:  $r44(\text{emily})$   
F43:  $r43(\text{benjamin})$   
F44:  $r44(\text{katharina})$   
F45:  $r44(\text{alina})$   
F46:  $r44(\text{johanna})$   
F47:  $r43(\text{patrick})$   
F48:  $r43(\text{marcel})$   
F49:  $r43(\text{emil})$   
F50:  $r44(\text{larissa})$   
F51:  $r44(\text{luisa})$   
F52:  $r43(\text{rene})$   
F53:  $r44(\text{valentina})$   
F54:  $r43(\text{felix})$   
F55:  $r43(\text{fabian})$   
F56:  $r44(\text{paula})$   
F57:  $r43(\text{leon})$   
F58:  $r43(\text{adam})$   
F59:  $r44(\text{charlotte})$   
F60:  $r43(\text{florian})$   
F61:  $r44(\text{emilia})$   
F62:  $r44(\text{emma})$   
F63:  $r44(\text{selina})$   
F64:  $r44(\text{magdalena})$   
Statement:  $r9(\text{patrick}, \text{alina})$

Answer with the numbers of the selected rule and facts. The selected rule and facts are (There may be multiple explanations for the statement, please provide one):