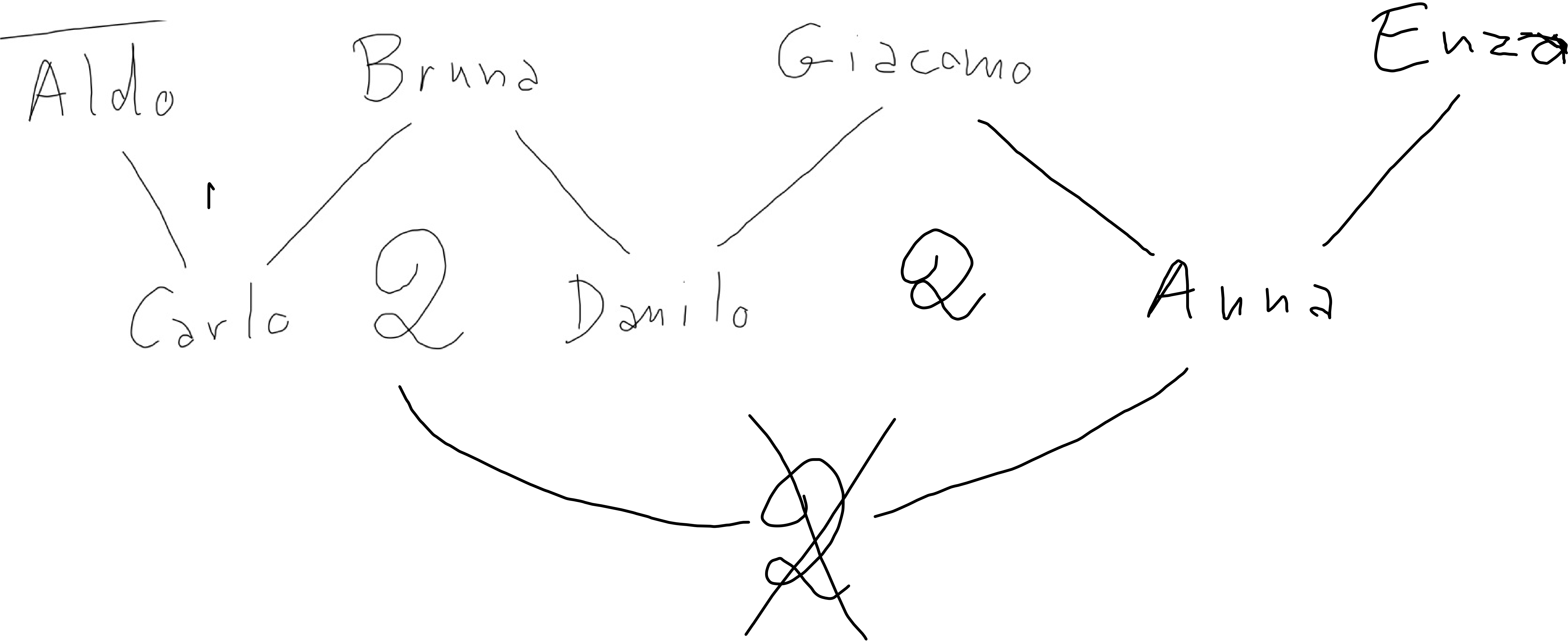
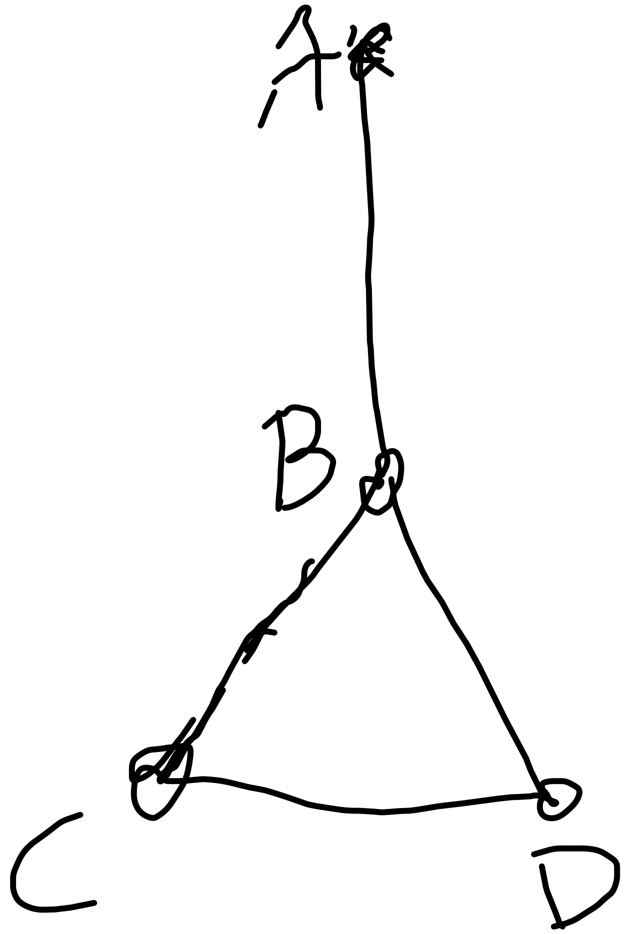
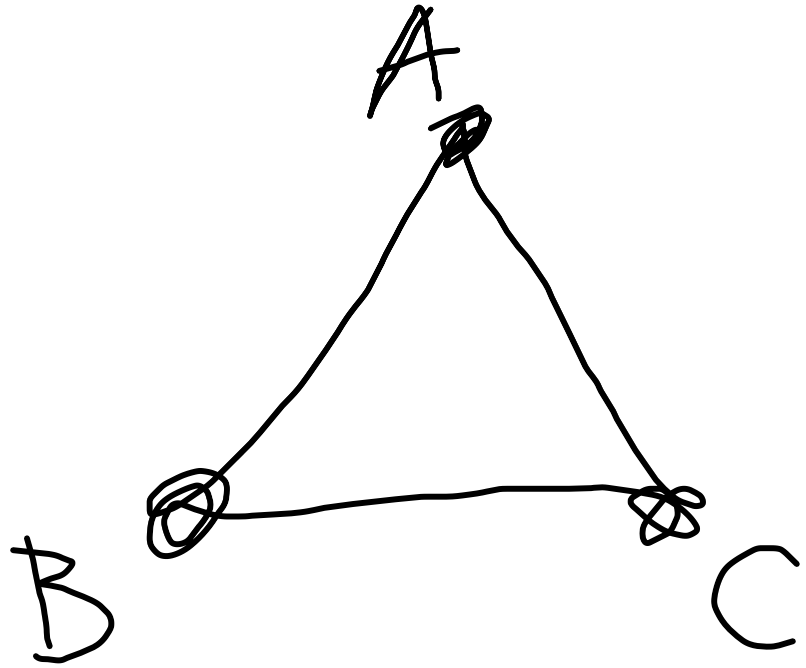
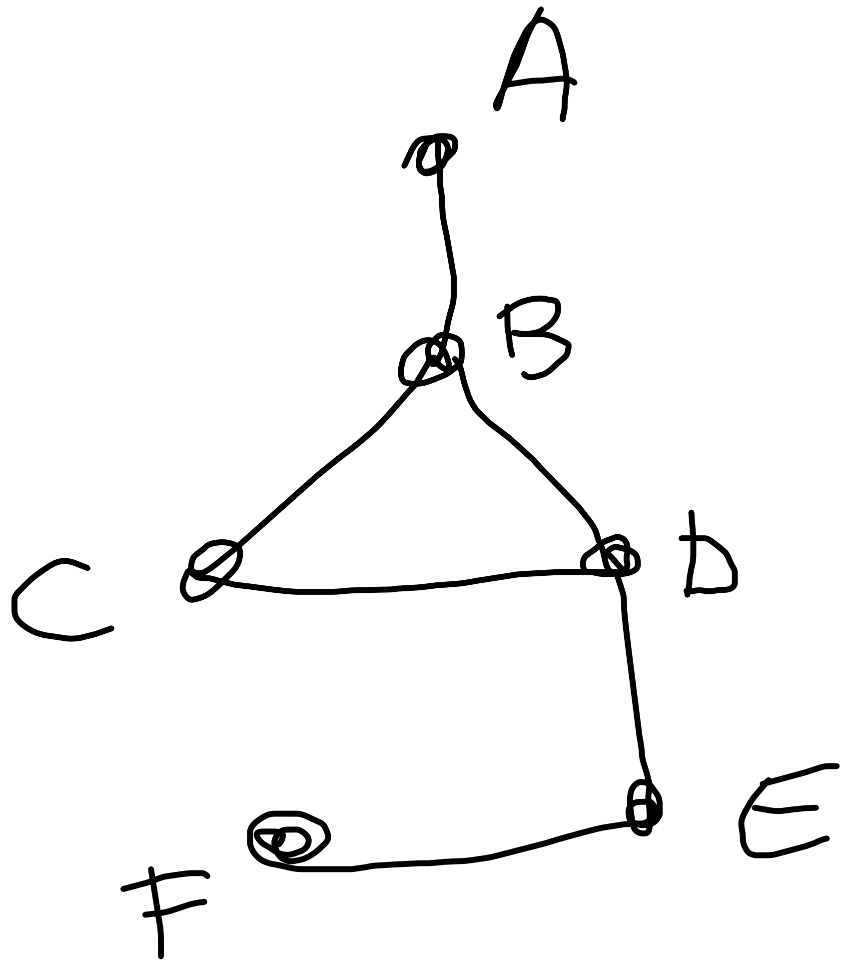
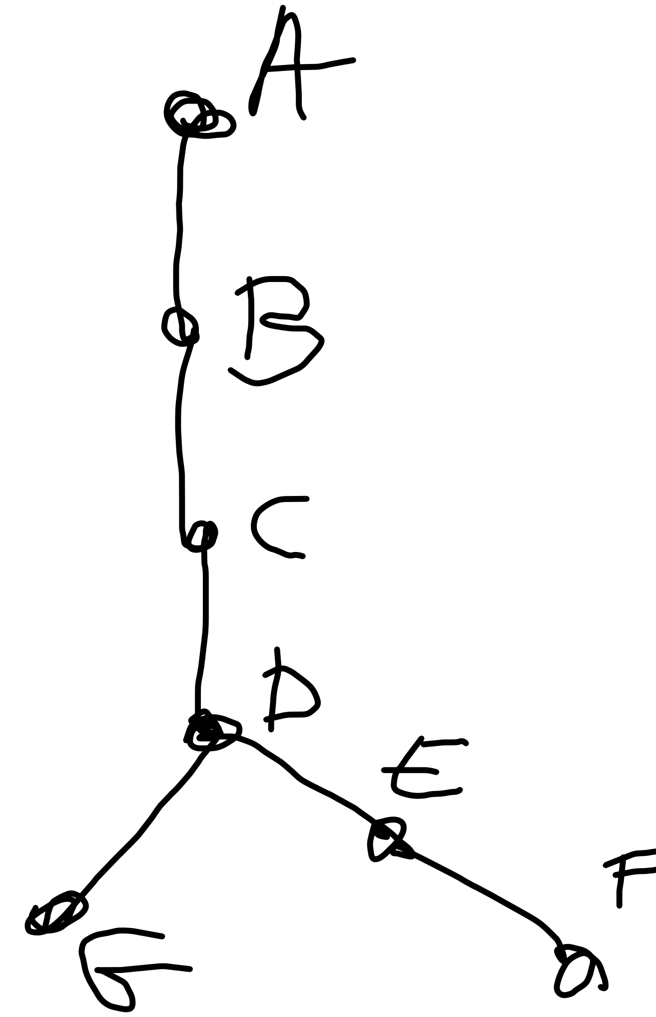

Aldo
Bruna
Giacomo
Enza
Carlo
2
Danilo
Q
Anna
2


A
B
C
D


A
B
C


A
B
C
D
E
F


A
B
C
D
E
F
G

DEF - Let $X \neq \emptyset$ be a set. Let $\wp$ be a property which can hold or not hold for subsets of X.

$Y \subseteq X$ is said to be maximal for property $\wp$ if

1) property $\wp$ holds for Y

and 2) if $Y \subsetneq Y' \subseteq X$ then property $\wp$ does NOT hold for Y'

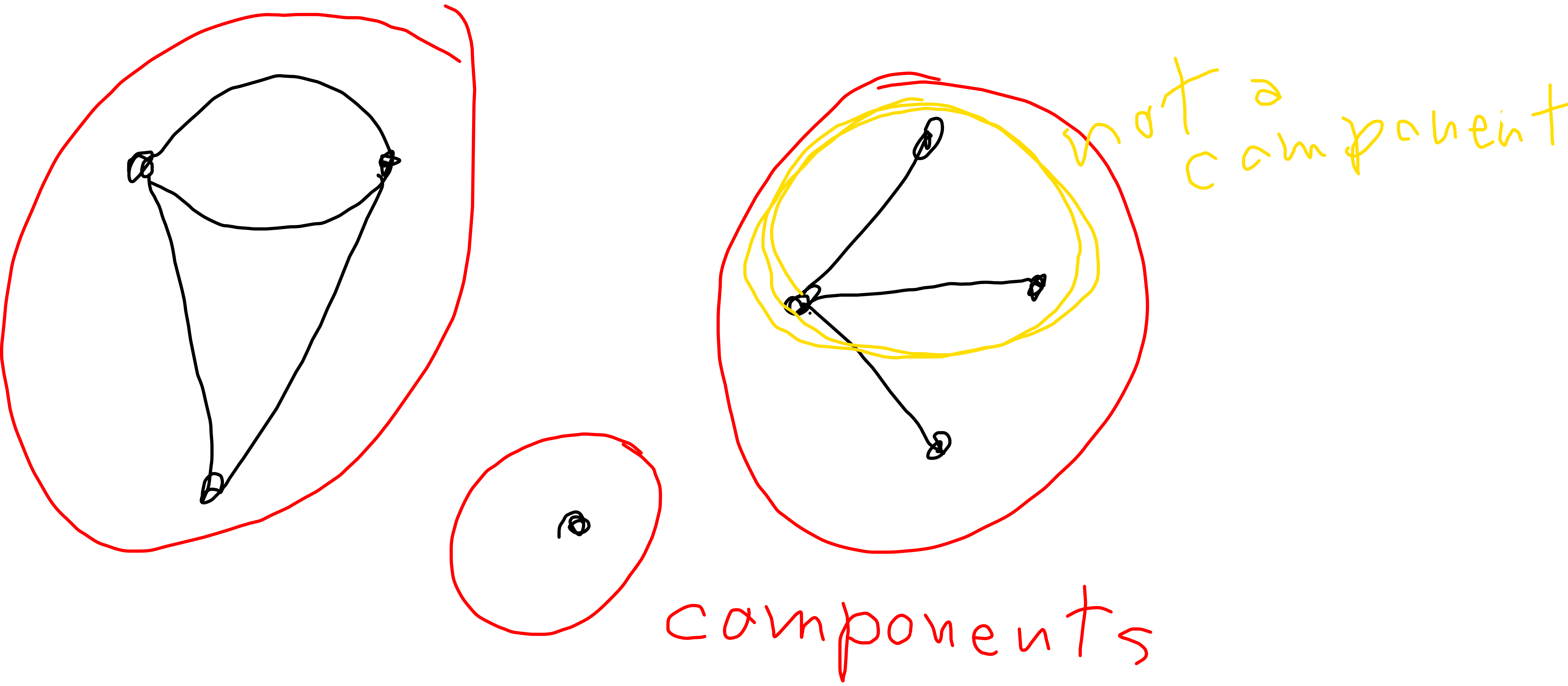
Alternative definitions of "connected graph" and of "component"

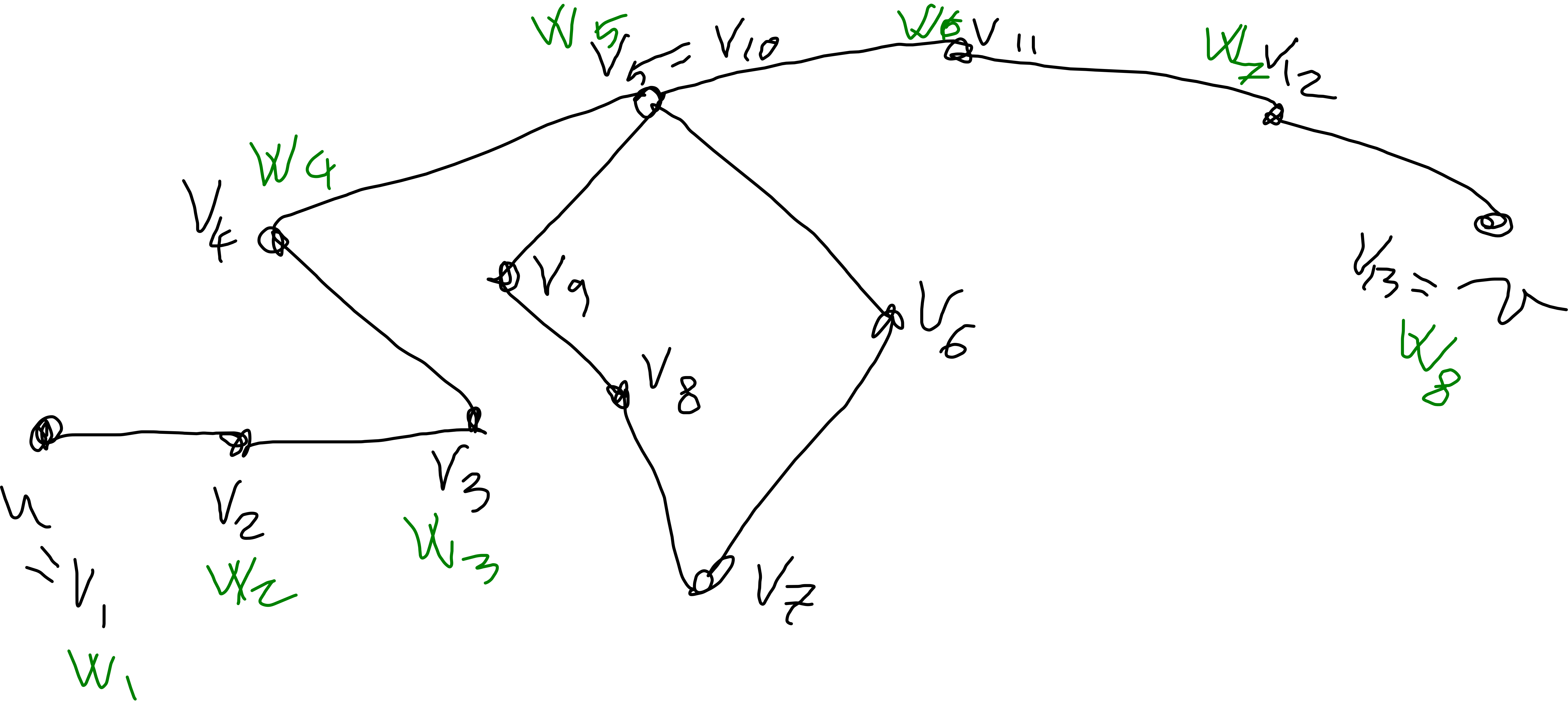
DEF – A graph $G = (V, E, \psi)$ is said to be connected if $\forall u, v \in V$ there exists at least one (u,v)-path.

DEF – Given a graph G, a subgraph H of G is said to be a component of G if

1) H is connected

and 2) H is maximal with respect to connectedness.


not a component
components



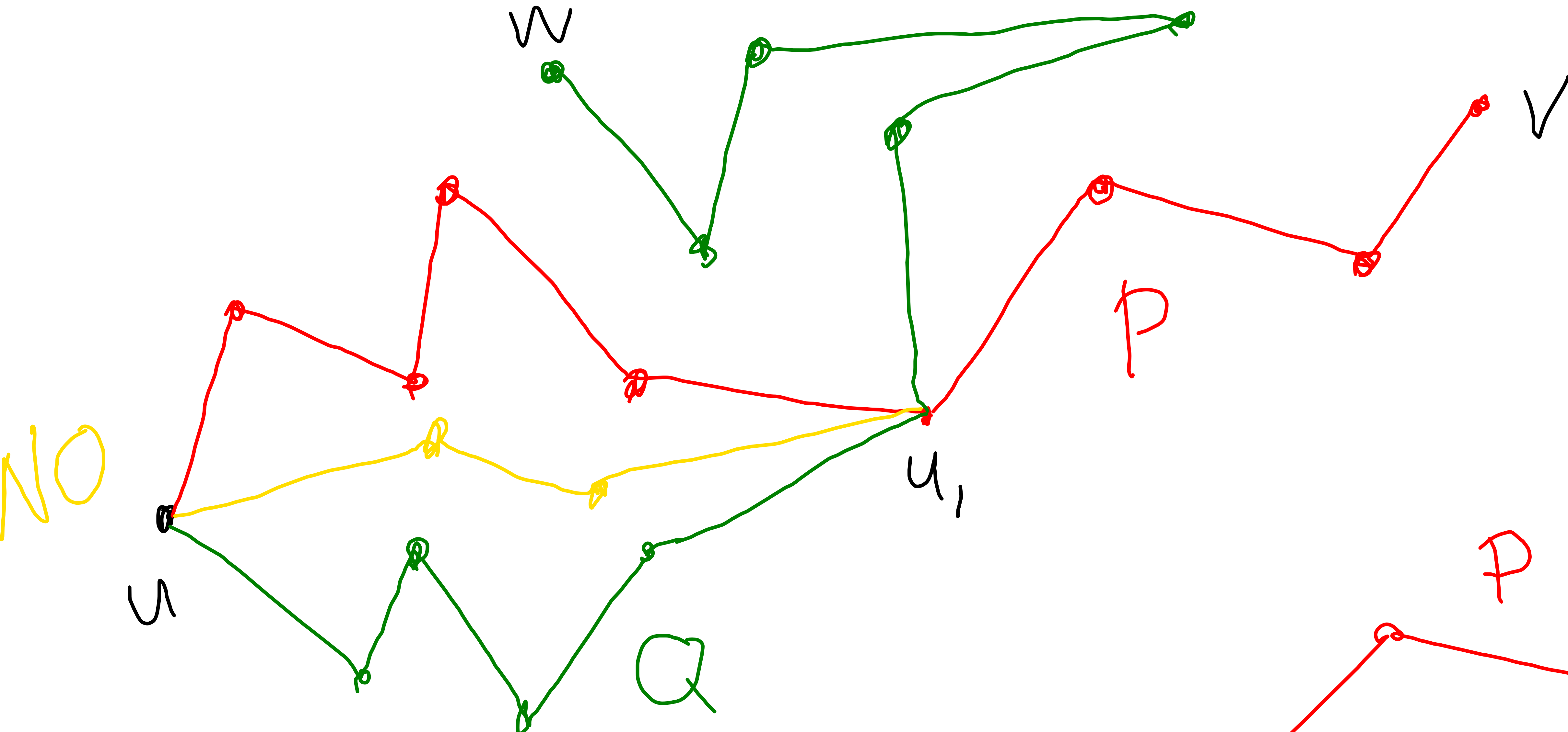
$u = v_1$
w_1
v_2
w_2
v_3
w_3
v_4
w_4
$v_5 = v_{10}$
w_5
v_6
v_7
v_8
v_9
v_{11}
w_6
v_{12}
w_7
$v_{13} = v$
w_8

DEF - A distance in a set $X \neq \emptyset$ is a function $d : X \times X \longrightarrow \mathbb{R}$ such that these three properties hold:

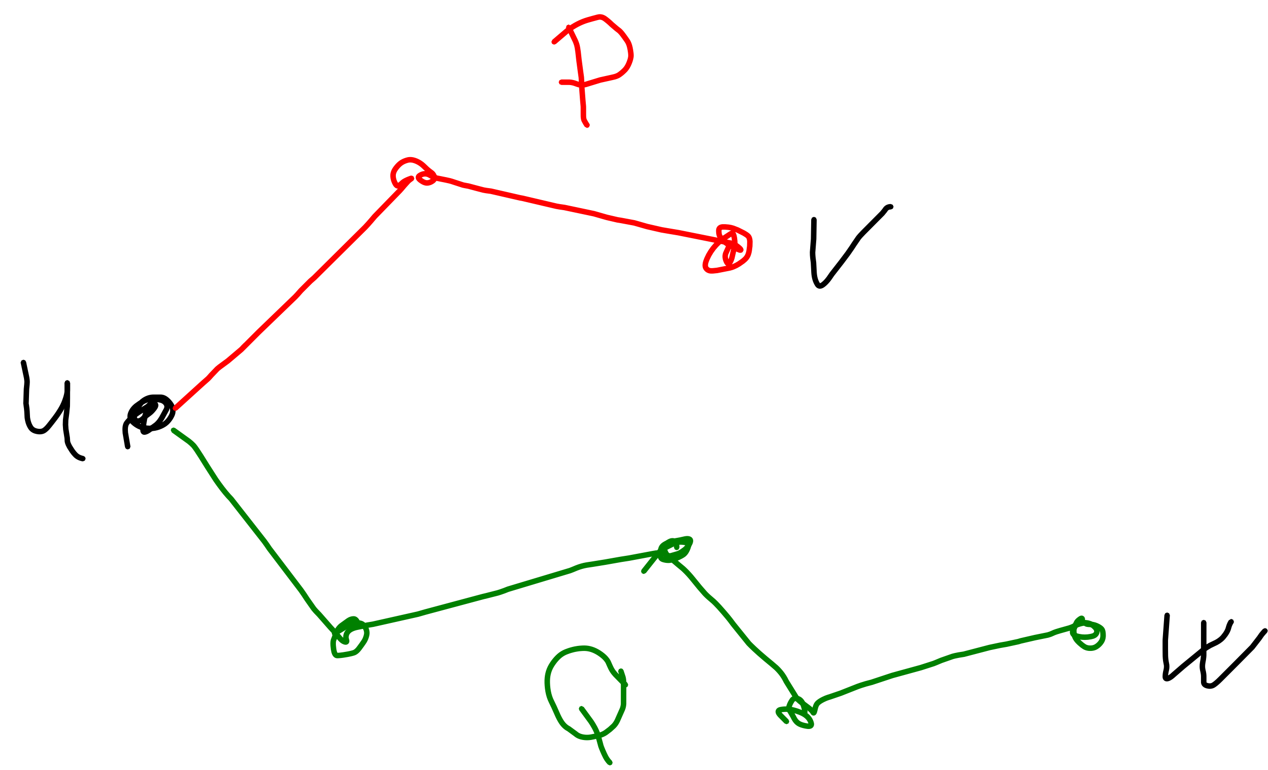
1) $\forall a,b \in X \quad d(a,b) \geq 0$ and $d(a,b) = 0 \iff a = b$

2) $\forall a,b \in X \quad d(a,b) = d(b,a)$

3) (triangular inequality) $\forall a,b,c \in X \quad d(a,c) \leq d(a,b) + d(b,c)$



w
v
P
NO
u
u1
Q



P
v
u
Q
w