EULER DIAGRAM

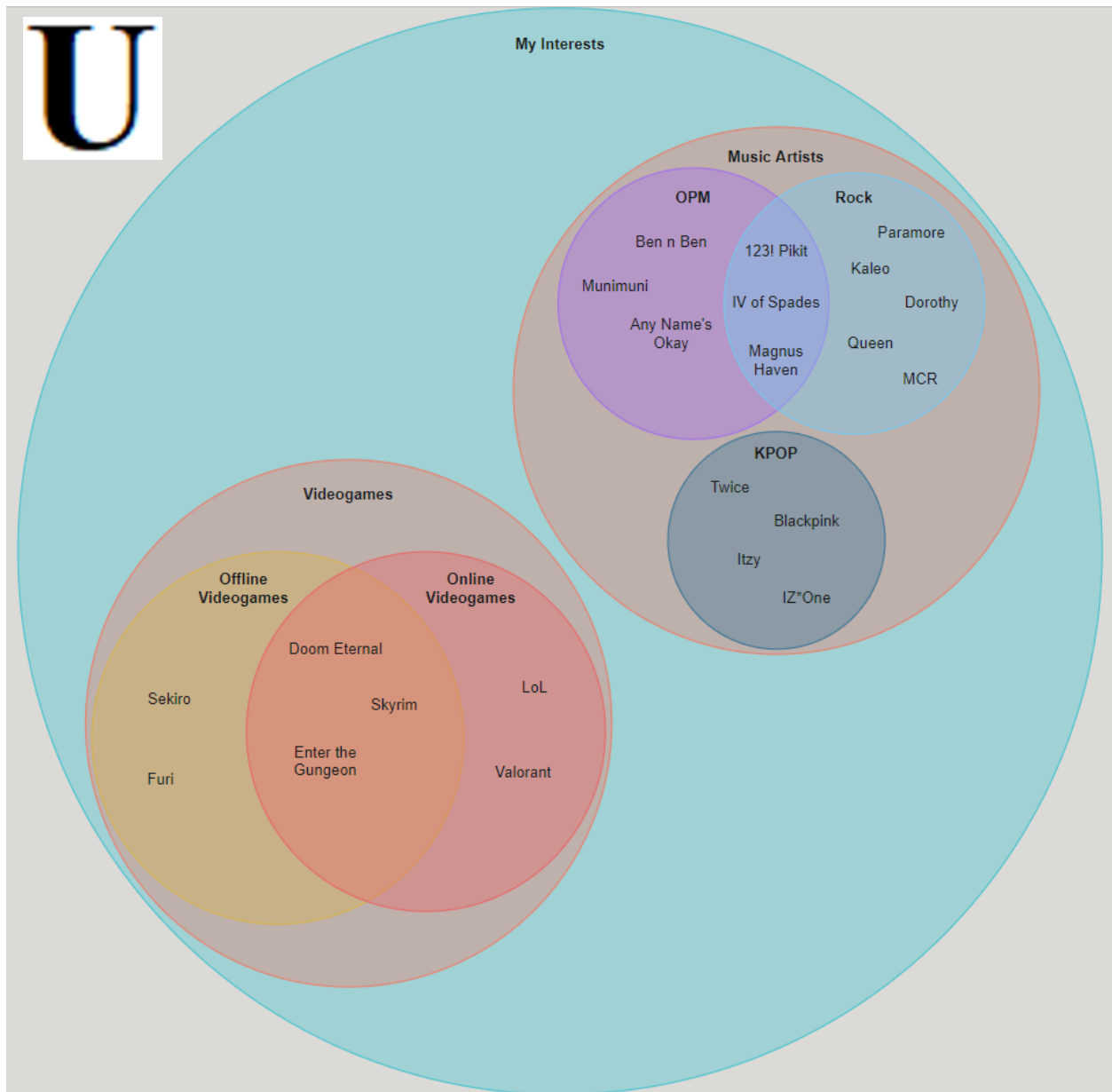*Figure 1 Euler Diagram*

SET ROSTER METHOD:

Let:

𝕌 - Fandoms

A - My Interests

B - Video Games

C - Offline Videogames

D - Online Videogames

E - Music Artists

F - OPM

G - Rock

H - KPOP

$$A = \{Videogames, Music\ Artists\}$$

$$B = \{Offline\ Videogames, Online\ Videogames\}$$

$$C = \{Sekiro, Furi, Doom\ Eternal, Skyrim, Enter\ the\ Gungeon\}$$

$$D = \{LoL, Valorant, Doom\ Eternal, Skyrim, Enter\ the\ Gungeon\}$$

$$E = \{OPM, Rock, KPOP\}$$

$$F = \{Ben\ n\ Ben, Munimuni, Any\ Name's\ Okay, 123!\ Pikit, IV\ of\ Spades, Magnus\ Haven\}$$

$$G = \{Paramore, Kaleo, Dorothy, Queen, MCR, 123!\ Pikit, IV\ of\ Spades, Magnus\ Haven\}$$

$$H = \{Twice, Blackpink, Itzy, IZ - One\}$$

SET BUILDER NOTATION:

$$A = \{a | a \in \mathbb{U}\}$$

$$B = \{b | b \in Videogames\}$$

$$C = \{c | c \in Offline\ Videogames\}$$

$$D = \{d | d \in Online\ Videogames\}$$

$$E = \{e | e \in Music\ Artists\}$$

$$F = \{f | f \in OPM\}$$

$$G = \{g | g \in Rock\}$$

$$H = \{h | h \in KPOP\}$$

UNIVERSAL/EXISTENTIAL QUANTIFIERS:

1. All my friends listen to music
   friends = Z,z
   music = X()
   $\forall z \in Z, X(z)$

2. Some videogames are offline videogames
   videogames = B,b
   offline videogames = C()
   $\exists b \in B, C(b)$

3. Some videogames are online videogames
   videogames = B,b
   online videogames = D()
   $\exists b \in B, D(b)$

4. Some music artists produce OPM
   music artists = E,e
   OPM = F()
   $\exists e \in E, F(e)$

5. Some music artists produce Rock
   music artists = E,e
   Rock = G()
   $\exists e \in E, G(e)$

6. Some music artists produce KPOP
   music artists = E,e
   KPOP = H()
   $\exists e \in E, H(e)$

SET OPERATION:

1. $C \cap D = \{Doom\ Eternal, Skyrim, Enter\ the\ Gungeon\}$
2. $F \cap G = \{123!\ Pikit, IV\ of\ Spades, Magnus\ Haven\}$
3. $A \cup \overline{A} = \mathbb{U}$
4. $\neg A = \mathbb{U}$
5. $B \cup E = \{Offline\ Videogames, Online\ Videogames, OPM, Rock, KPOP\}$