

# SUM OF ALL VIDEO GAMES

Putting the 'linked'  
in video game metadata

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LD4 conference, 12 July 2023

# Why should we care about video games?



- **Major cultural industry, more than 3 billion players worldwide**
- **At least 200K to 300K games published (depending how deep you go)**

# **Thesis:**

**The 'best' video game metadata already exists.**

**It's only spread out.**

**(And you need to know where to look)**

# Various specializations...

- Credits?** → **MobyGames / GameFAQs**
- Age ratings?** → **ESRB / USK databases**
- Critical reception?** → **MetaCritic / OpenCritic / GameRankings**
- Completion time?** → **HowLongToBeat**
- Voice actors?** → **Behind the Voice Actors**
- Speedruns?** → **Speedrun.com / TASVideos.org**
- Car models?** → **Internet Game Car Database**

...

# ...and scopes.

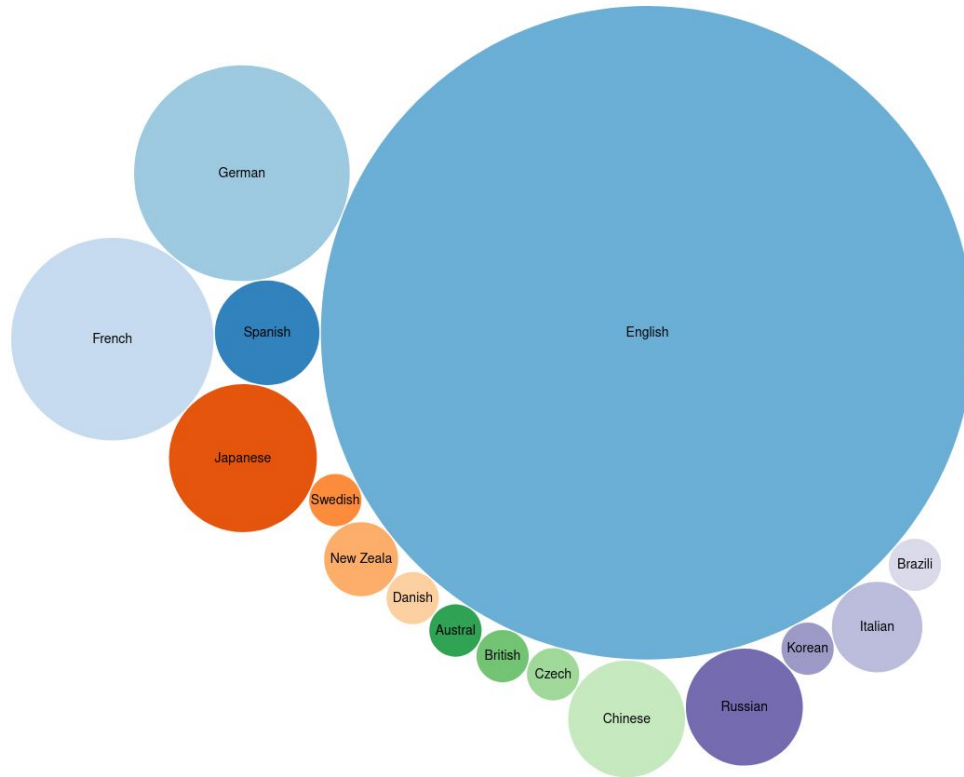
- Visual novels?** → **VNDB**
- Adventure games?**
  - **Adventure Gamers (en)**
  - **Adventure Corner (de)**
  - **Adventure's Planet (it)**
  - **Planète Aventure (fr)**
- Commodore 64?**
  - **Lemon64 (en)**
  - **C64-Games.de (de)**
  - **Ready64 (it)**

...

# A lot of databases but...

- **No common identifier**
- **Conceptual differences**
- **Over-representation of English**
- **Potential blind-spots / biases**
- **Little cross-linking**

# Over-representation of English



*Language of video game databases known to Wikidata*

[https://w.wiki/6\\$eT](https://w.wiki/6$eT)

# Blind spots on platforms (1/2)



## Known to:

Mobygames  
VideoGameGeek  
UVList  
IGDB  
Glitchwave

## Unknown to:

GameFAQs  
Giant-Bomb



# Blind spots on platforms (1/2)



## Games

Mobygames	114
VideoGameGeek	110
UVList	388
IGDB	11
Glitchwave	1

DCMOTO: 619 games  
LogicielsMoto: 300+ games

(French-language Wikipedia: 329 games)

# Blind spots on platforms (2/2)



Known to:

Giant-Bomb

... and that's it.

# Blind spots on regions

Only ever 3 regions for games – Japan, North-America and Europe – right?

# Blind spots on regions

This is the Sega Master System...

... and it was huge in Brazil:

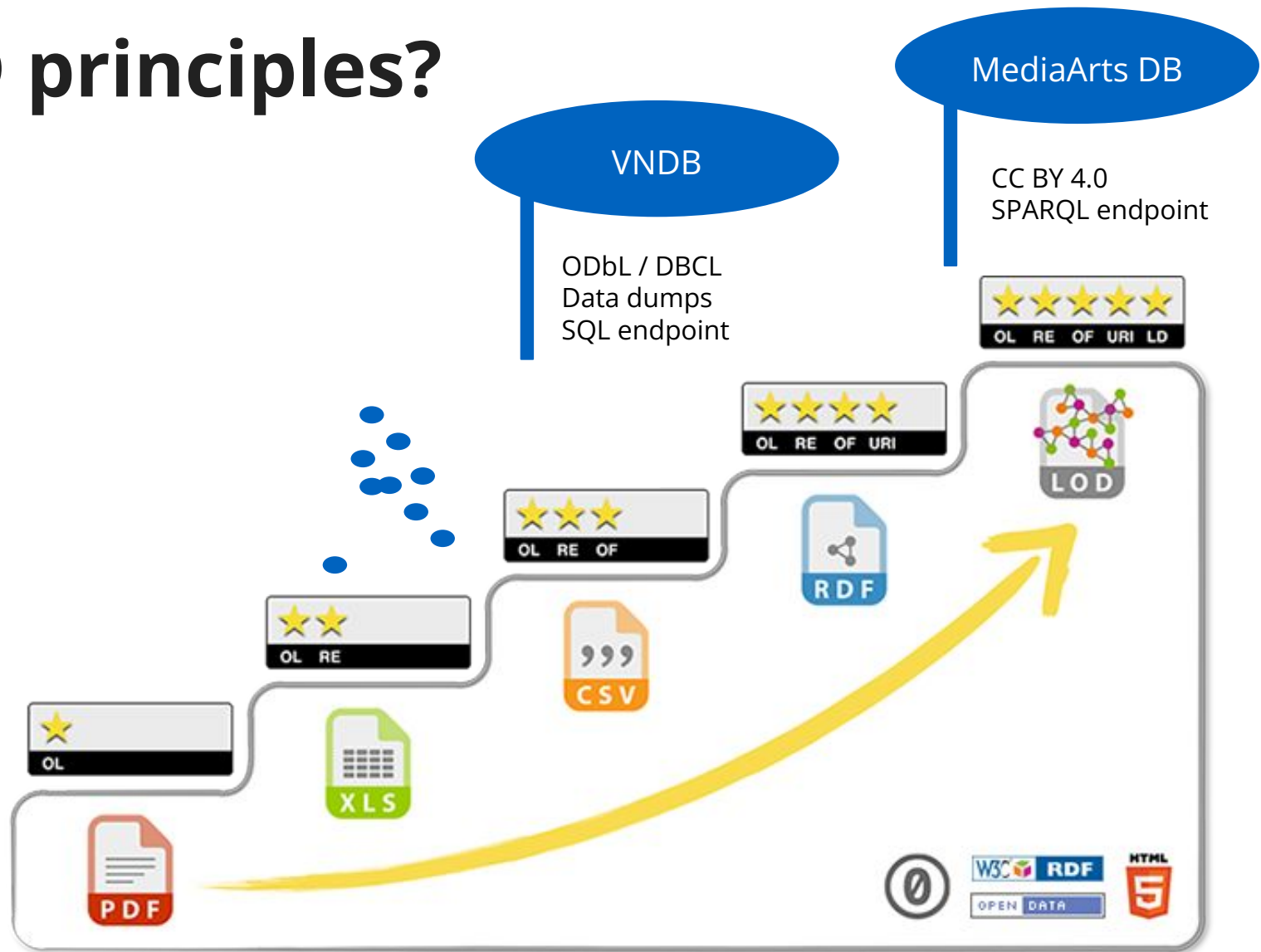
Japan	1M
USA	2M
Europe	6.8M
Brazil	8M



...yet some databases (GiantBomb, VGG) only have game release dates in JP/NA/EU.



# LOD principles?





**WIKIDATA**

**A free,  
collaborative,  
multilingual,  
secondary database,  
collecting structured data  
to provide support for Wikipedia,  
the other Wikimedia wikis,  
and to anyone in the world.**



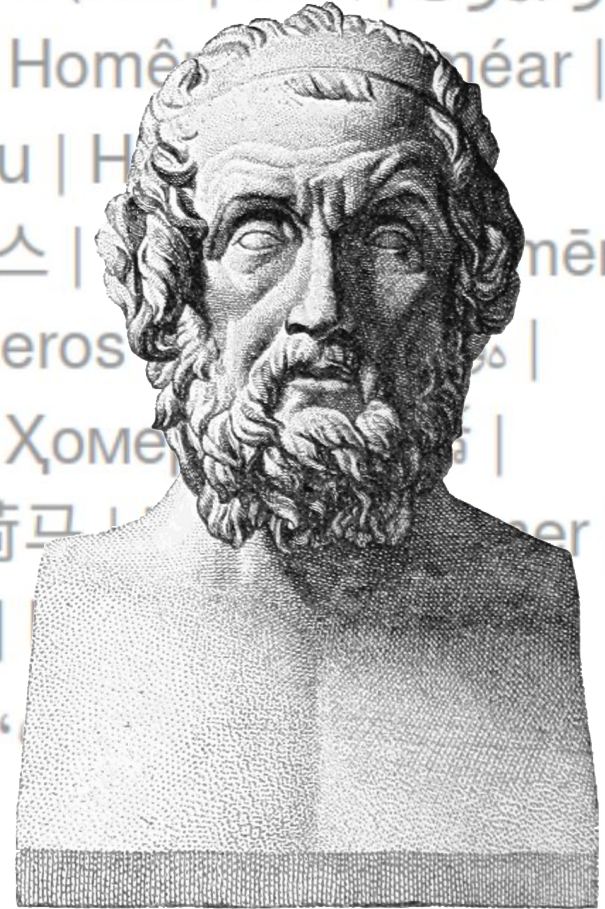
**A free,**





collaborative,

**multilingual,**



호머 | האמער | Homerus | Homeros | Mæonides | ホメロス | غومر  
| Omere | Homerus Epicus | Ὅμηρος | Homère | Homero | ஹோமர்  
| هومير | Гамер | Омир | হোমার | ಹೊಮೆರ | هومير  
| Homér | Ὅμηρος | Omeru | هومر | Omêr | Homêr | هومير  
荷馬 | הומרוס | होमर | Homérosz | Ὅμηρος | Homeros  
ホメーロス | ಹೊಮೆರ | homer | 호메로스 | Homers  
| Хомер | ಹೊಮೆರ | Houmero | ಹೊಮೆರ | Hómeros | ಹೊಮೆರ  
Omiros | Homeri | Hümer | ಹೊಮೆರ | హోమర్ | Хоме  
Gomer | Hómēros | האמער | Hozmaj | 荷馬 | Homere  
Гамэр | होमर | Huomers | ಹೊಮೆರ | Ὅμηρος | Homers  
Umer | ಹೊಮೆರ | Homéro | Uoma | آاسكا ،  
| Omeros | Гьомер | Houmère

IC 66 | IC 58 | IC 62 | IC 64 | IC 68

# secondary database,

units sold



2,000,000



point in time

December 2020

↳ 2 references



3,000,000



point in time

24 March 2022

sourcing circumstances

greater than

↳ 2 references

reference URL

[https://www.igromania.ru/news/114701/Prodazhi\\_Control\\_prevysili\\_3\\_mln\\_kopiy\\_i\\_v\\_neyo\\_sygralo\\_svyshe\\_15\\_mln\\_geymerov.html](https://www.igromania.ru/news/114701/Prodazhi_Control_prevysili_3 mln_kopiy_i_v_neyo_sygralo_svyshe_15_mln_geymerov.html)

title

Продажи Control превысили 3 млн копий, и в неё сыграло свыше 15 млн геймеров (Russian)

language of work or name

Russian

publication date

24 March 2022

author name string

Дмитрий Сироватко

published in

Igromania

retrieved

24 March 2022

reference URL

<https://www.videogameschronicle.com/news/remedy-confirms-control-2-is-in-development-for-ps5-xsx-and-pc/>

title

Remedy confirms Control 2 is in development for PS5, XSX and PC (British English)

publication date

11 November 2022

language of work or name

British English

retrieved

6 July 2023

published in

Video Games Chronicle

author name string

Andy Robinson

+ add reference

+ add value

label — Star Fox (Q1326889) — identifier  
description — 1993 SNES video game — edit  
Starwing — alias  
In more languages

property — instance of — video game — value  
1 reference  
+ add value

genre — rail shooter  
0 references  
+ add reference  
+ add value

# collecting structured data

statement — publisher — Nintendo  
0 references  
edit  
+ add reference  
+ add value

statement group — publication date — 21 February 1993  
place of publication — Japan — qualifiers  
1 reference  
26 March 1993  
place of publication — North America  
0 references  
3 June 1993  
place of publication — Europe  
0 references  
+ add reference  
+ add value

Elden Ring		Equip	
<b>ELDEN RING</b>			
<b>Publicació</b>	25 febrer 2022 (mundial)	<b>Desenvolupador(s)</b>	FromSoftware
<b>Versions</b>	1.09.1 (17 abril 2023)	<b>Editor</b>	Namco Bandai Games (mundial) FromSoftware (Japó)
<b>Gènere</b>	videojoc de rol d'acció i soulslike	<b>Director</b>	Hidetaka Miyazaki
<b>Personatges</b>	Godrick the Grafted, Rennala, Starscourge Radahn i Malenia	<b>Guionista</b>	George R.R. Martin i Hidetaka Miyazaki
<b>Llicència</b>	llicència de propietat	<b>Distribuidor</b>	PlayStation Store, Microsoft Store, Steam i Humble Store
<b>Disponible en</b>	[Amplia]	<b>Qualificacions</b>	
<b>Característiques tècniques</b>			
<b>Plataforma</b>	Windows, Xbox One, PlayStation 4, PlayStation 5 i X S	<b>ESRB PEGI USK CERO OFLC ClassInd GSRR</b>	
<b>Modes</b>	un jugador, multijugador i mode cooperatiu	      	
<b>Format</b>	disc òptic i distribució digital	<b>Premis</b> [Tanca]	
<b>Dispositiu d'entrada</b>	controlador de videojoc, teclat d'ordinador i ratolí	<ul style="list-style-type: none"> <li>(9 març 2023) <a href="#">Pégase Award for best international game</a> <sup>(en)</sup></li> <li>(3 gener 2023) <a href="#">Steam Award for Best Game You Suck At</a> <sup>(en)</sup></li> <li>(3 gener 2023) <a href="#">Steam Award for Game of the Year</a> <sup>(en)</sup></li> <li>(2022) <a href="#">The Game Award a la millor direcció</a></li> </ul>	

Aggregate review scores		
Game	Year	Metacritic
<i>Demon's Souls</i>	2009	89/100 <sup>[53]</sup>
<i>Dark Souls</i>	2011	PC: 85/100 <sup>[54]</sup> PS3: 89/100 <sup>[55]</sup> X360: 89/100 <sup>[56]</sup>
<i>Dark Souls II</i>	2014	PC: 91/100 <sup>[57]</sup> PS3: 92/100 <sup>[58]</sup> X360: 91/100 <sup>[59]</sup>
<i>Dark Souls III</i>	2016	PC: 89/100 <sup>[60]</sup> PS4: 89/100 <sup>[61]</sup> XONE: 87/100 <sup>[62]</sup>
<i>Dark Souls: Remastered</i>	2018	NS: 83/100 <sup>[63]</sup> PC: 84/100 <sup>[64]</sup> PS4: 84/100 <sup>[65]</sup> XONE: 86/100 <sup>[66]</sup>
<i>Demon's Souls</i>	2020	93/100 <sup>[67]</sup>

to provide support for Wikipedia,  
the other Wikimedia wikis,



**and to anyone in the world.**

# WikiProject Video Games



<http://w.wiki/6an>

(and subpages)



# In numbers

- 57,128 video games (Q7889)
- 2999 expansion packs (Q209163)
- 557 video game compilations (Q16070115)
- 893 downloadable contents (Q1066707)
- 148 game controllers (Q865422)
- 1702 video game platforms (Q105492305)
- 379 video game genres (Q659563)
- 306 video game magazines (Q69662460)

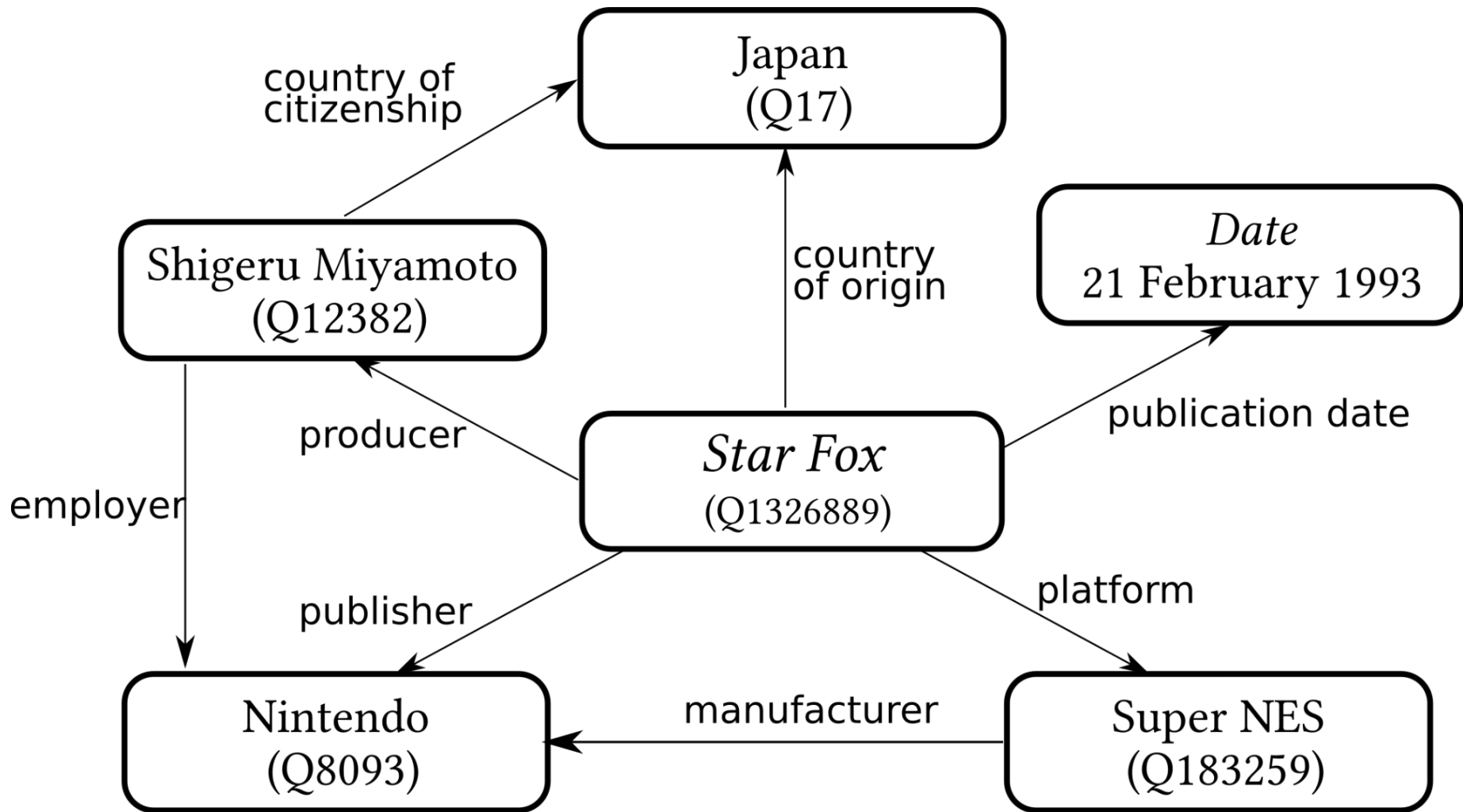
label — Star Fox (Q1326889) — identifier  
description — 1993 SNES video game — edit — alias  
Starwing  
In more languages

property — instance of — video game — value  
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+ add value

genre — rail shooter — 0 references  
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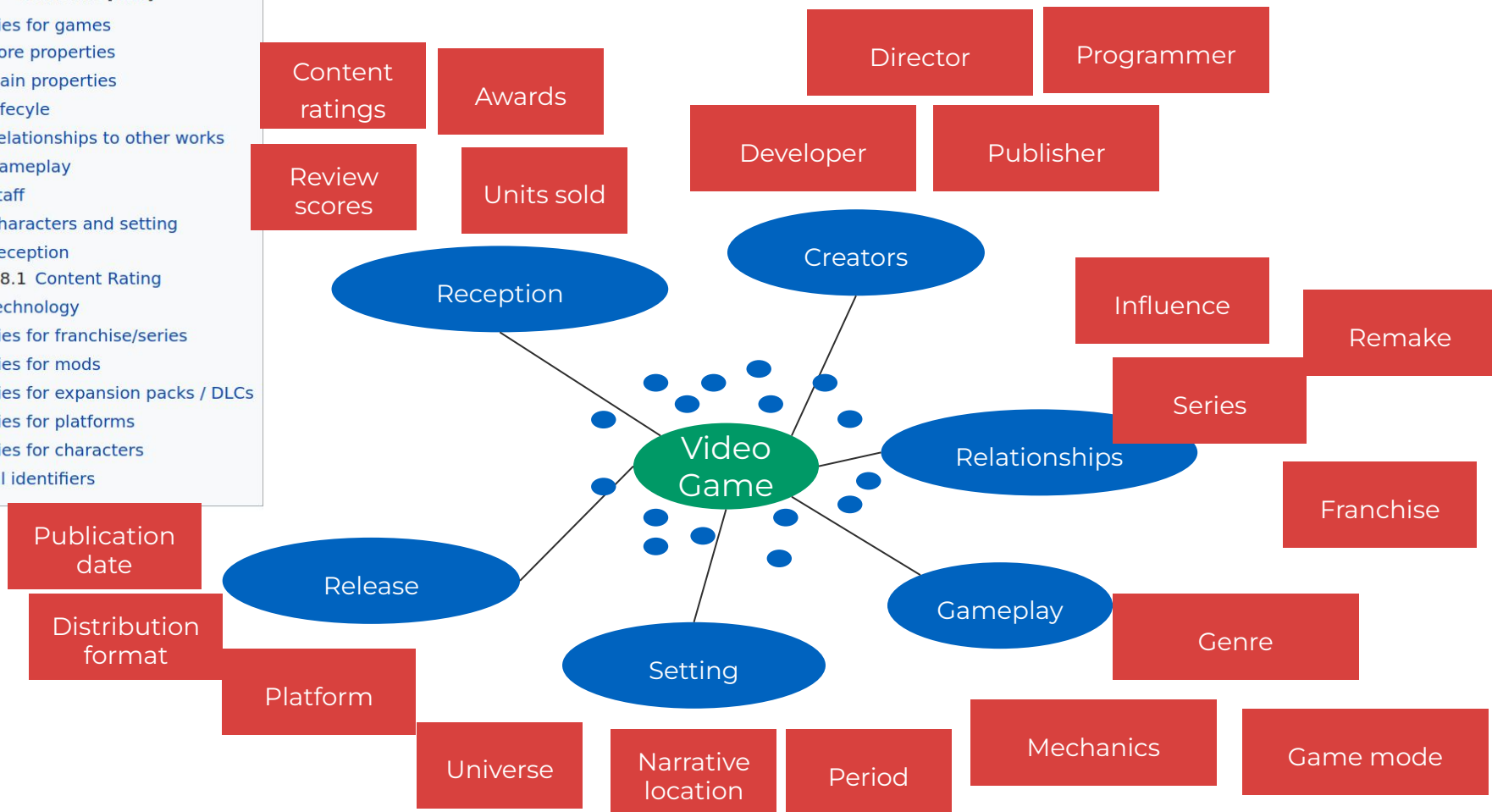
statement — publisher — Nintendo — edit — 0 references  
+ add reference  
+ add value

statement group — publication date — 21 February 1993 — place of publication — Japan — 1 reference  
26 March 1993 — place of publication — North America — 0 references  
3 June 1993 — place of publication — Europe — 0 references  
+ add reference  
+ add value



**Contents** [hide]

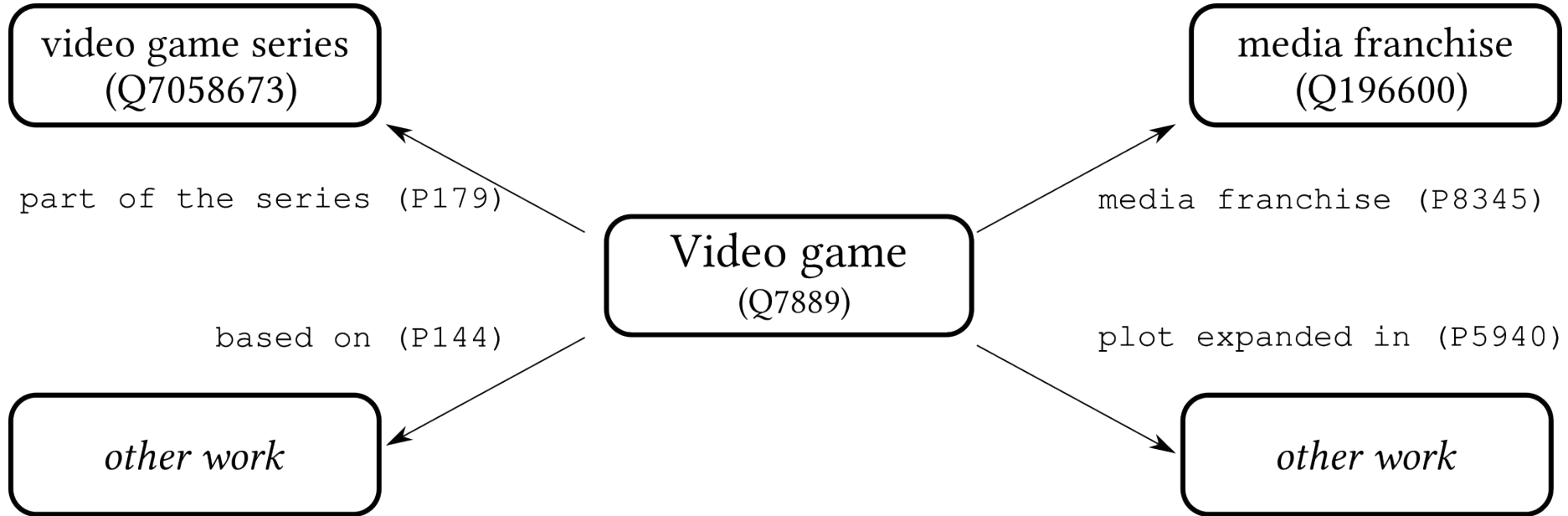
- 1 Properties for games
  - 1.1 Core properties
  - 1.2 Main properties
  - 1.3 Lifecycle
  - 1.4 Relationships to other works
  - 1.5 Gameplay
  - 1.6 Staff
  - 1.7 Characters and setting
  - 1.8 Reception
    - 1.8.1 Content Rating
  - 1.9 Technology
- 2 Properties for franchise/series
- 3 Properties for mods
- 4 Properties for expansion packs / DLCs
- 5 Properties for platforms
- 6 Properties for characters
- 7 External identifiers



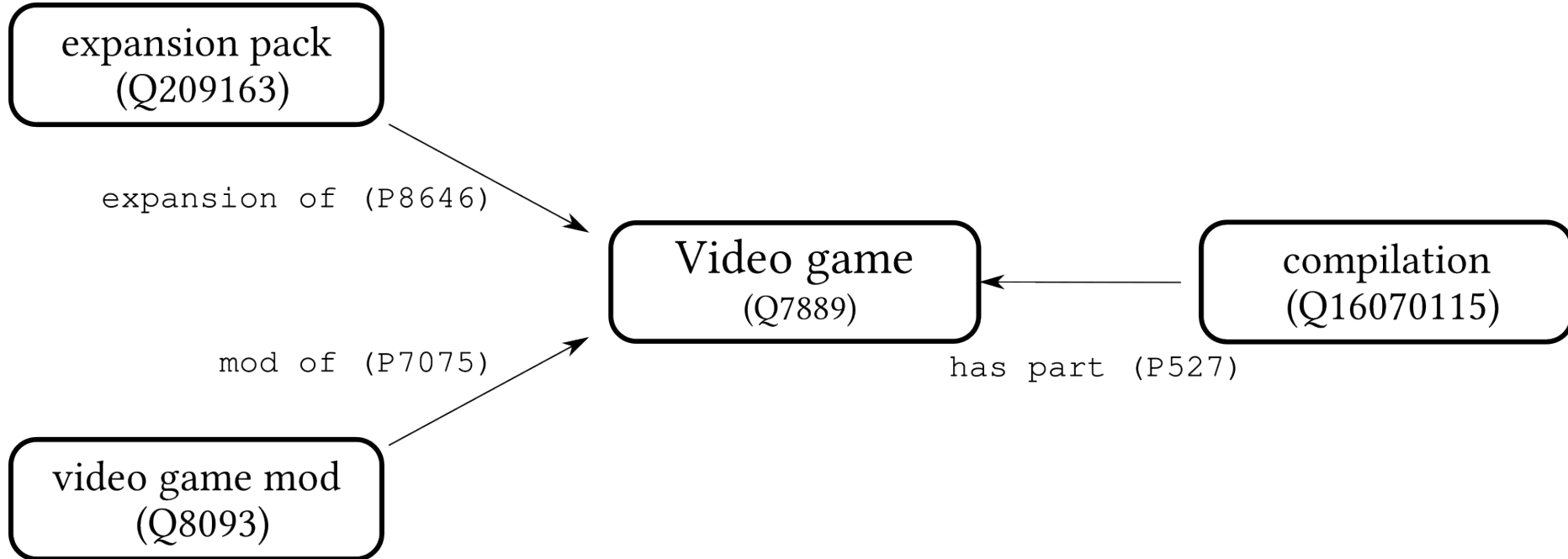
# How well are items described?

Top groupings (Minimum 20 items)		Top Properties (used at least 0 times per grouping)						
Name	Count	genre (P136)	developer (P178)	publisher (P123)	country of origin (P495)	publication date (P577)	game mode (P404)	distribution format (P437)
Microsoft Windows (Q1406)	30184	60.78% (18345)	61.17% (18465)	64.95% (19604)	45.72% (13800)	93.26% (28150)	87.71% (26474)	82.26% (24829)
macOS (Q14116)	7450	67.77% (5049)	63.72% (4747)	66.85% (4980)	51.4% (3829)	97.44% (7259)	94.68% (7054)	93.17% (6941)
iOS (Q48493)	4735	78.52% (3718)	61.71% (2922)	57.7% (2732)	65.13% (3084)	90.71% (4295)	66.08% (3129)	71.64% (3392)
Linux (Q388)	4666	67.68% (3158)	60.33% (2815)	62.84% (2932)	47.21% (2203)	96.68% (4511)	95.67% (4464)	94.08% (4390)
Nintendo Switch (Q19610114)	3595	74.88% (2692)	65.76% (2364)	74.63% (2683)	67.2% (2416)	96.41% (3466)	87.32% (3139)	93.55% (3363)
Android (Q94)	3335	81.32% (2712)	61.71% (2058)	57.45% (1916)	66.69% (2224)	88.76% (2960)	66.66% (2223)	77.33% (2579)
PlayStation 2 (Q10680)	3072	83.17% (2555)	70.02% (2151)	70.02% (2151)	77.08% (2368)	82.68% (2540)	65.95% (2026)	47.17% (1449)
PlayStation 4 (Q5014725)	3024	87.6% (2649)	80.26% (2427)	83.17% (2515)	80.95% (2448)	96.69% (2924)	90.28% (2730)	86.61% (2619)
Xbox One (Q13361286)	3002	72.68% (2182)	81.75% (2454)	89.37% (2683)	70.69% (2122)	98.3% (2951)	88.11% (2645)	89.01% (2672)
Commodore 64 (Q99775)	2554	77.25% (1973)	38.92% (994)	48.98% (1251)	66.44% (1697)	88.53% (2261)	47.14% (1204)	24.31% (621)
DOS (Q170434)	2325	87.14% (2026)	65.08% (1513)	67.44% (1568)	86.28% (2006)	94.92% (2207)	72.22% (1679)	47.53% (1105)
PlayStation 3 (Q10683)	2086	91.04% (1899)	85.38% (1781)	83.94% (1751)	84.9% (1771)	93.1% (1942)	83.08% (1733)	75.5% (1575)
Xbox 360 (Q48263)	1882	92.67% (1744)	89.48% (1684)	89.59% (1686)	87.35% (1644)	95.48% (1797)	89.16% (1678)	75.45% (1420)
Xbox Series X and Series S (Q98973368)	1795	62.01% (1113)	83.18% (1493)	94.09% (1689)	63.84% (1146)	98.27% (1764)	83.73% (1503)	87.02% (1562)
Nintendo DS (Q170323)	1743	77.4% (1349)	65.4% (1140)	68.16% (1188)	69.88% (1218)	80.9% (1410)	63.45% (1106)	53.64% (935)
PlayStation (Q10677)	1736	80.93% (1405)	65.38% (1135)	67.45% (1171)	76.61% (1330)	90.03% (1563)	63.94% (1110)	46.14% (801)
Commodore Amiga (Q100047)	1597	84.1% (1343)	54.48% (870)	58.8% (939)	78.21% (1249)	94.61% (1511)	57.42% (917)	33.75% (539)
ZX Spectrum (Q23882)	1566	81.1% (1270)	45.85% (718)	59.64% (934)	74.84% (1172)	89.34% (1399)	57.85% (906)	36.14% (566)
Super Nintendo Entertainment System (Q183259)	1405	89.68% (1260)	69.25% (973)	72.53% (1019)	73.45% (1032)	93.67% (1316)	77.51% (1089)	38.58% (542)
arcade video game machine (Q192851)	1383	90.53% (1252)	78.24% (1082)	70.93% (981)	79.25% (1096)	91.61% (1267)	58.5% (809)	15.33% (212)
Wii (Q8079)	1370	89.42% (1225)	81.02% (1110)	82.26% (1127)	82.12% (1125)	93.07% (1275)	79.34% (1087)	76.35% (1046)
Amstrad CPC (Q478829)	1211	86.95% (1053)	52.52% (636)	72.83% (882)	75.97% (920)	93.31% (1130)	63.01% (763)	38.48% (466)

# Relationships with other works



# Relationships to other entities





# Alignment

- Property creation (Identifiers ♥)
- Mix 'n' match-ing
- Bulk import
- Continuous identifier imports
- [External Identifiers dashboard](#)



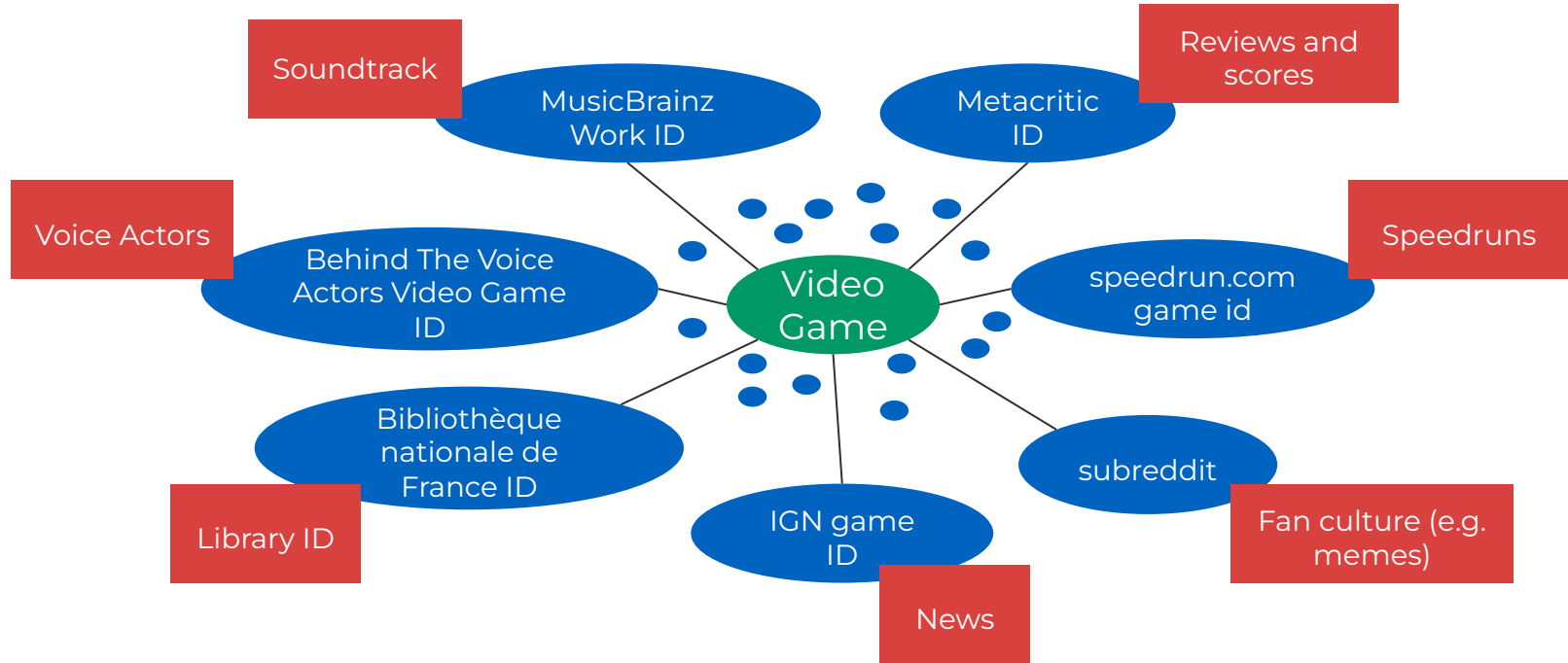
Master Cataloguer  
320 Mix'n'match catalogs



Identifier fiesta  
380 external identifier properties



# THE Linking Hub for Video Games



[https://www.wikidata.org/wiki/Wikidata:WikiProject\\_Video\\_games/Identifiers](https://www.wikidata.org/wiki/Wikidata:WikiProject_Video_games/Identifiers)



















**The underground fungus...**

# Limits & challenges

# Data modeling challenges

- At the moment: (more or less) one Wikidata item per video game
  - (Somewhat inherited from the Wikipedias)
- Challenging for identifiers
  - e.g. Identifier points to a specific edition or release of a game
  - Specific qualifiers needed
- (Still) Limited ontology to describe games
  - Narrative genres, visual style, perspective, pacing...
- A fairly simplistic data model (cf Editions/versions/releases/compilations)...

# Forcing us to workarounds...

publication date	 <b>31 January 1997</b> place of publication: Japan platform: PlayStation publisher: Square <a href="#">▶ 1 reference</a>	 <b>16 May 2013</b> place of publication: Japan platform: Microsoft Windows publisher: Eidos Interactive <a href="#">▶ 1 reference</a>  edit
	 <b>7 September 1997</b> place of publication: North America platform: PlayStation publisher: Sony Interactive Entertainment <a href="#">▶ 1 reference</a>	 <b>19 August 2015</b> platform: iOS <a href="#">▶ 1 reference</a>  edit
	 <b>14 November 1997</b> place of publication: PAL region platform: PlayStation publisher: Sony Interactive Entertainment <a href="#">▶ 1 reference</a>	 <b>5 December 2015</b> platform: PlayStation 4 <a href="#">▼ 0 references</a>  edit <a href="#">+ add reference</a>
	 <b>25 June 1998</b> place of publication: North America Europe platform: Microsoft Windows publisher: Eidos Interactive <a href="#">▶ 1 reference</a>	 <b>7 July 2016</b> platform: Android <a href="#">▼ 0 references</a>  edit <a href="#">+ add reference</a>
		 <b>26 March 2019</b> platform: Xbox One Nintendo Switch place of publication: worldwide <a href="#">▶ 1 reference</a>  edit

# ...and preventing to answer some questions

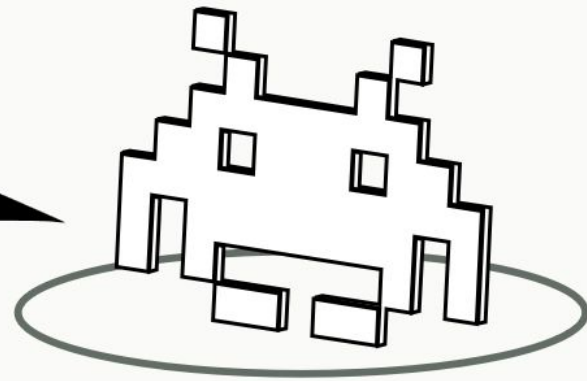
Which games released in Europe have a Japanese dub?

Which GDCA nominated games can I play on the Switch?

On which platform was *Shenmue* first released in the USA?

# VIDEOGAME

L3680



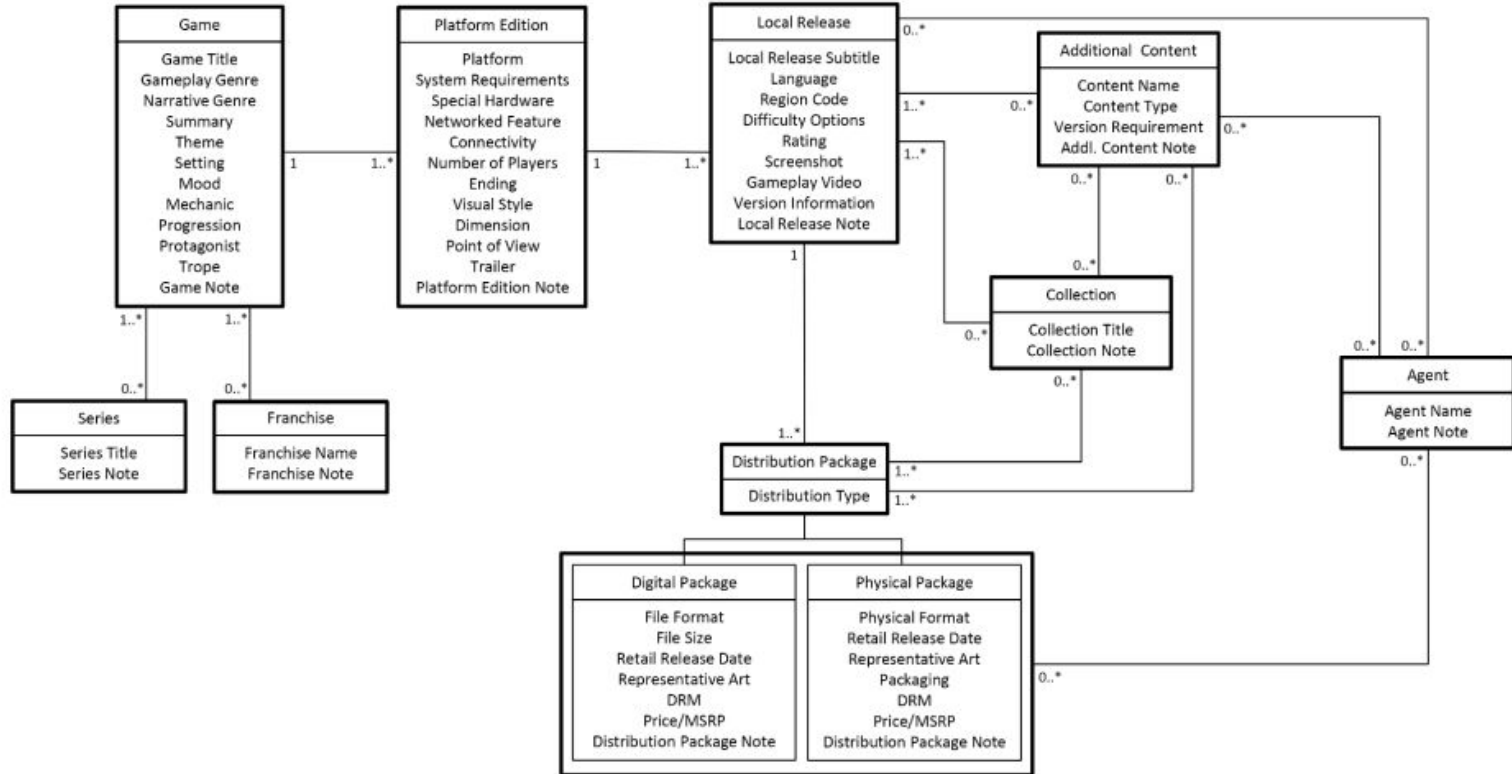
## DATA MODELER



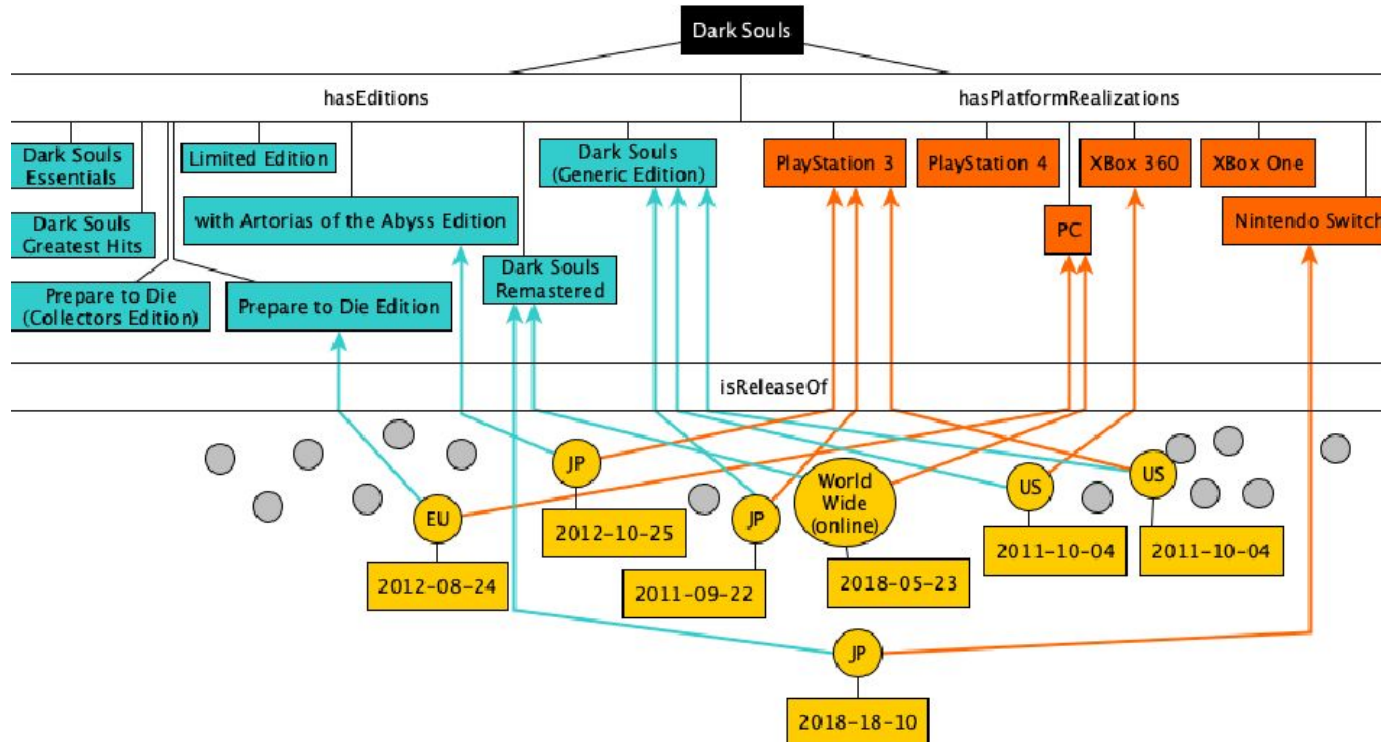
DATA MODELER TRIES USING FRBR  
IT'S NOT VERY EFFECTIVE...



# An ideal to strive for?



# An ideal to strive for?



# What do we want to be?

- The one-stop shop for researchers
- The metadata backbone for libraries
- Being/Staying useful to Wikipedias
- Enhancing other databases
  - Visual Novel Database
  - Internationale

Computerspielesammlung

# How can your help?

- Provide use-cases
- Challenge the data model
- Leverage Wikidata to pool efforts<sup>1</sup>

<sup>1</sup> [Pixelvetica report](#)

THANK YOU SPARQL!

BUT OUR DATA IS IN  
ANOTHER DATABASE!



# Query time!

[https://www.wikidata.org/wiki/Wikidata:WikiProject\\_Video\\_games/Queries](https://www.wikidata.org/wiki/Wikidata:WikiProject_Video_games/Queries)