Exploring Relationships Among Video Games

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ABSTRACT
This poster explores relationships among video games in an attempt to better understand the domain of video games and interactive media as well as improve user access to games. Video games are related in complex ways that cannot be adequately represented by contemporary conceptual models like *Functional Requirements for Bibliographic Records* (FRBR). Relationships between game editions, series, distribution methods and additional game content all pose challenges for those seeking to describe video games in a user-centered way.

Categories and Subject Descriptors
H.3.7 [**Information Storage and Retrieval**]: Digital Libraries – *Standards*, K.8.0 [**Personal Computing**]: Games

General Terms
Design, Standardization

Keywords
Video games, Relationships, Metadata, Conceptual Models

1. INTRODUCTION
Video games are gaining importance in American society, with increasing numbers of game players, consumer spending, educational opportunities and scholarly interests. Yet contemporary descriptions of video games in libraries as well as the commercial sector reveal many challenges [8]. Growing trends of digitally distributed games—games with no physical components—raise specific challenges for digital libraries. Among other issues, relationships between video games are complex and not well or explicitly represented. This poster offers a preliminary exploration of relationship types currently existing among video games and the issues raised in description attempts.

2. REVIEW OF PREVIOUS WORK
The GAme MEtadata Research Group (GAMER) at the University of Washington Information School, in partnership with the Seattle Interactive Media Museum (SIMM), is developing a user-centered metadata schema for video games. Early analysis revealed issues with how video games are currently described [6]. Based on domain analysis and user personas representing common game users, 61 metadata elements were developed, 16 of which were identified as core elements [7]. These elements were further evaluated and revised based on cataloging sample games.

Subsequent development of a larger recommended element set [8] and controlled vocabularies [3] revealed more issues.

One major challenge was relating various games, editions of games, game distributions, and additional content. Video games are released in multiple regions for multiple platforms. Games also change over time as popular games are rereleased as legacy content for newer systems, as special "collector's editions," or in other limited special releases. Test cataloging revealed additional issues describing digitally distributed video games and their relationships to games with more traditional physical distributions [9]. These complex relationships are not yet accurately represented in either the current metadata schema or subsequent conceptual modeling work, warranting additional investigation.

Complex relationships are not unique to video games. In the bibliographic universe, FRBR is a conceptual model illustrating conceptual boundaries of bibliographic resources and relationships among them [5]; however, FRBR's Group I entities (work, expression, manifestation, and item) remain problematic for alternative media such as art, architecture, and material culture [1]. Attempts to apply FRBR to a classic computer game revealed difficulty in determining which parts of a user's experience best map to FRBR's notions of work, expression, manifestation, or item [10]. Work in academia defining the nature of video games is still nascent and has frequently focused on game design [12], identifying the distinguishing aspects of video games [2], [4] or preservation [10].

3. METHOD
In order to identify relationships among games, we used the following complimentary techniques: 1) consultation with video game experts and enthusiasts with deep domain knowledge, and 2) examination of video games themselves and their current descriptive metadata and structures in existing organizational systems. We worked with a selection of sample game sets chosen for diverse representation of genres, platforms, creation dates, and distribution methods. Game sets sprung from a seed game known to have complicated relationships with other games and additional content. Sample game sets included *Shin Megami Tensei: Persona, Disgaea, Final Fantasy, Bejeweled, Civilization V*, and all the related games in each series as well as additional content that had been published for them.

4. CHALLENGES
4.1 Edition Relationships
Like other media, video games can have multiple editions. For example, Atlus released *Shin Megami Tensei: Persona 3* in 2007, and *Shin Megami Tensei: Persona 3 FES* in 2009. However, other than self-identification in the game title, there is not yet any clear definition of what defines a new edition or how that edition is related to other editions of the same game. The definition of edition is well-established in the bibliographic universe as copies of a resource "printed from the same typographic image and

issued by the same entity in the same format at one time or at intervals without alteration" [11]. Yet the print-centric aspects of this definition are clearly not applicable to video games. This definition also stipulates that editions are issued in the same format, despite listing examples of printed books, e-books, audiobooks on CD and other differing formats as editions of the same resource. Like these other media, the same video game may exist in a variety of formats. For example, *Persona 4 Arena* exists for multiple platforms, from an arcade console to a physical disc for PlayStation 3 and XBOX360 to a digitally accessible version on the PlayStation Network. These games are all *Persona 4 Arena*—but are they the same game? Game editions may also differ in their source code, visual imagery, presentation, and platform. These variations create different gameplay experiences, to the extent that some gamers consider them to be different games. How then can we best represent the relationships among these different editions of the same game?

4.2 Series Relationships

Series is an essential descriptive component for both gamers and game industry personnel. Many gamers seek and follow game series, and game publishers capitalize on this by creating games that further the series. Thus game series are sprawling aggregate entities that grow larger and more complex over time. For instance, the *Persona 4* game from Atlus is considered part of the *Persona* series, which itself is a sub-series of *Shin Megami Tensei (SMT)* series. *Persona 1* and *2* belong to the same *Persona* series, but feature unrelated stories. *Persona 3* and *4*, however, do share related settings and feature some of the same characters. There are multiple spin-off games like *Persona 4 Arena* and *Persona 4 Dancing All Night*, which may evolve into their own series. Another related game, *Persona Q Shadow of the Labyrinth,* is a spin-off from *Persona 3* and *4*, featuring characters from both games. There are also anime and movie adaptations, soundtracks, art books, strategy guides, etc. *SMT* series also has other sub-series *Devil Summoner*, *Digital Devil Saga*, and *Devil Survivor*. Such complexities are not unique to the *SMT* series, as we observed similar intricacies with *Disgaea*, *Final Fantasy,* and *Sid Meyer's Civilization*.

4.3 Relationships between Games and Additional Content

The ability to download or otherwise access content and modifications external to an original release of a game is increasingly popular. In 2012, a substantial expansion for *Civilization V,* sold separately from and independent of the game, was released. This expansion, called *Gods & Kings,* introduced significant new game play features. While *Civilization V* is playable without this expansion, many gamers are interested in what, if any, expansions, modifications, and additional downloadable content are available for a given game as well as what those expansions offer. Other additional content may not affect gameplay or in-game options at all, but rather fix security issues or update software. With all of these different relationships between games and additional content, it is important to understand and express them more clearly in order to fulfill gamers' information needs and search patterns.

4.4 Other Relationships

Our examination also revealed additional relationships besides the above categories. Many games are not uniquely original; they are "inspired by" or "based on" other games. Many users, especially game scholars and industry personnel, are interested in tracing these relationships. For instance, many people consider the popular puzzle game *Candy Crush Saga* (2012) to be based on *Bejeweled* (2001); however, *Bejeweled* (2001) was, in turn, inspired by the DOS game *Shariki* (1984). How might these relationships be best expressed and represented so scholars and game designers can access this information?

5. FUTURE WORK

The complex sets of relationships among video games present significant challenges to description. This poster is a preliminary attempt to tease out the types and nuances of relationships that exist among video games that are important to users. This exploration of relationships among video games is part of a larger research agenda focusing on establishing a user-centered conceptual model and metadata schema for video games and interactive media. Once the important relationships have been identified, we plan to clearly define them so they can be incorporated into a data model for more robust game description.

6. ACKNOWLEDGMENTS

7. REFERENCES

[1] M. Baca and S. Clarke, "FRBR and Works of Art, Architecture, and Material Culture," in *Understanding FRBR,* A. Taylor, Ed. (ed.) Westport, CT: Libraries Unlimited, 2007, pp. 103-110.

[2] C. Crawford, *The Art of Computer Game Design.* Berkeley, California: Osborne/McGraw-Hill, 1984.

[3] A. Donovan, et. al., "Pretty as a pixel: Issues and challenges in developing a controlled vocabulary for video game visual styles," in *Joint Conf. Digital Libraries*, Indianapolis, IN, 2013, pp. 413-414.

[4] A. R. Galloway, *Gaming: Essays on Algorithmic Culture.* Minneapolis, MN: University of Minnesota Press, 2006.

[5] IFLA Study Group on the FRBR. "Functional requirements for bibliographic records: Final report." K.G. Saur Verlag, München, 2009.

[6] J. H. Lee, J. T. Tennis, and R. I. Clarke, "Domain analysis for a video game metadata schema: Issues and challenges." *Lecture Notes in Computer Science, 7489*, pp. 280-285, 2012.

[7] J. H. Lee, et. al., "Developing a video game metadata schema for the Seattle Interactive Media Museum." *Int. Journal Digital Libraries,* vol. 13, no. 2, pp.105-117, 2012.

[8] J. H. Lee, et. al., "User-centered approach in creating a metadata schema for video games and interactive media," in *Joint Conf. Digital Libraries*, Indianapolis, IN, 2013, pp. 229-238.

[9] J. H. Lee, R. I. Clarke, and A. Perti, "Metadata for digitally distributed video games at the Seattle Interactive Media Museum," in *Museums and the Web*, Baltimore, MD, 2013, pp.159-172.

[10] J. McDonough, et. al. "Twisty little passages almost all alike: Applying the FRBR model to a classic computer game." *Digital Humanities Quarterly*, vol. 4, no. 2. Available: http://www.digitalhumanities.org/dhq/vol/4/2/000089/000089.html

[11] J. M. Reitz. (2014). "Edition," in *Online Dictionary of Library and Information Science.* [Online]. Available: http://www.abc-clio.com/ODLIS/odlis_E.aspx#edition

[12] M. J. P. Wolf, "The video game as a medium," in *The Medium of the Video Game*. Austin, TX: University of Texas Press, 2001.