

Back and Forth from Boundary Objects to IIF Resources

The Recipes of a Community-driven Initiative Specifying Standards

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1. Introduction

The exchange of digital objects and their associated metadata is simplified when these meet established standards, but the capture of all the (meta)information is still very much in tension, at the limits of resources, knowledge and indeed the underlying capabilities of given standards.

These limitations can be translated into what Susan Leigh Star defines as residual categories and consequently the generation of boundary objects [1]. The question of these non-standardised residuals within the cultural heritage (CH) field is an iterative identification issue that institutions and individuals have sought to mitigate. A good example still to be investigated are the resources conforming to the application programming interfaces (APIs) of the International Image Interoperability Framework (IIF) [2], which have been growing in popularity in the CH field for the past decade for disseminating (image-based) digital objects at scale.

2. The growth and death of boundary objects

Star [3] demonstrated to some extent the cycle of a standardisation attempt to restructure residual categories that created said boundary objects (cf. Fig. 1).

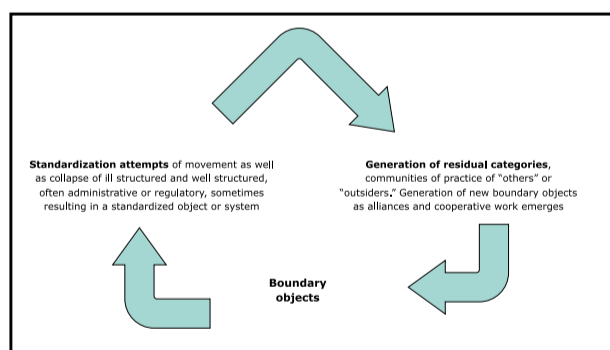


Figure 1. Relationships between standards and residual categories. Schema adapted from [3]

3. IIF resources

- IIF resources are JSON-LD serialised objects duly specified by the [IIF Presentation API](#)
- A Manifest is, i.e. a **description of the structure and properties of the compound object** which can be interpreted by a client and displayed to end-users, typically through a viewer (cf. Fig. 2).
- Are compound objects, to some extent, the antithesis of boundary objects?

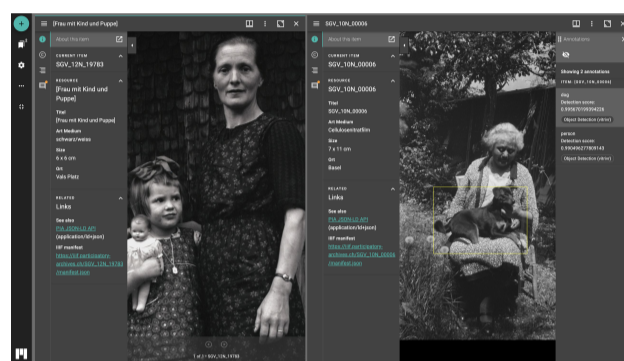


Figure 2. IIF Manifests generated as part of the PIA research project and displayed in Mirador

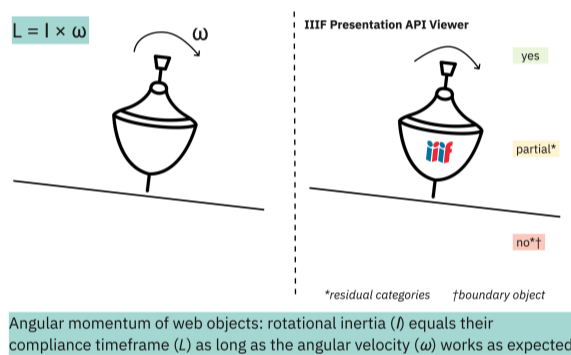


Figure 3. Analogy to the angular momentum [5] and IIF resources as spinning tops

4. The angular momentum

- IIF Viewers are the initial entry point for most end users. They are mediators [4] that interpret IIF resources.
- Relevant indicator: **the support of patterns correctly interpreted by existing viewers.** The IIF Cookbook document these patterns/recipes.
- Analogy between web content, here IIF resources, to spinning tops when they are at their angular momentum. **Each viewer would be a surface on which force is applied** (cf. Fig. 3).
- As of September 2022, the [Viewer matrix](#) lists 42 unique cookbook recipes and their support (yes, no, partial) by Mirador, the Universal Viewer (UV) and Annona (cf. Fig. 4)

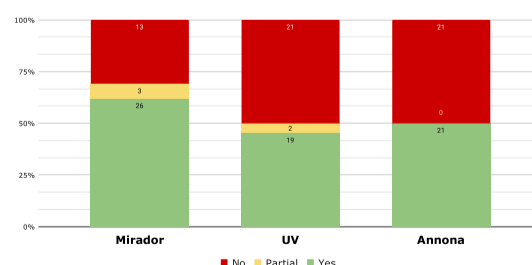


Figure 4. Viewer support of the IIF Cookbook recipes (as of September 2022)

5. Results

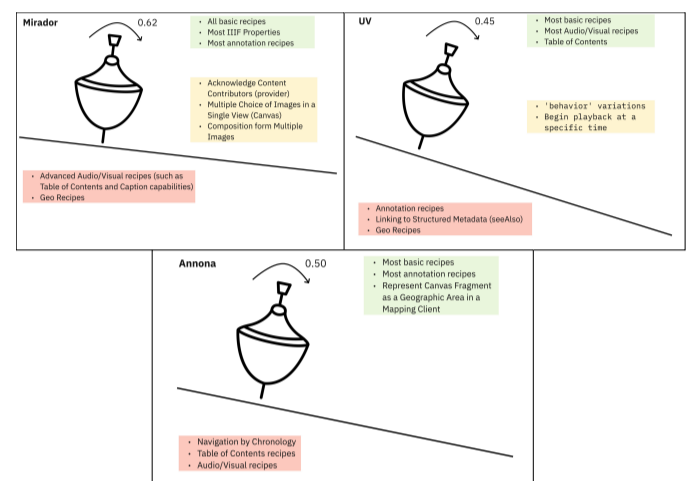


Figure 5. Summary of IIF Presentation API 3.0 viewer support as spinning tops (Mirador, UV, Annona)

6. Conclusion

- A shift from rigid standards to software support is needed to perform analysis around boundary object for web content. I propose the angular momentum analogy as a heuristic evaluation method for assessing the compliance of agreed-upon APIs.
- The generation of compound objects has a technical cost that can only be overcome through the (IIF) community to mitigate residual categories.
- Further processing is needed as IIF resources with unsupported patterns are not always discarded by viewers.
- The angular momentum analogy is not to set aside the whole underlying architecture of the Web, but rather to acknowledge relevant *actants* within a given network.

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