Multiple Masters
Case Studies from the Tate Collection

Aldo Tambellini
Black TV, 1969

Tina Keane
Faded Wallpaper, 1988

Ben Rivers
Slow Action, 2010
Historic exhibition format

- 16mm - prints from master

Conservation formats

- 16mm - fine grain positive/interpositive
- duplicate/internegative
- answer/check/release prints

- Graded and cropped telecine to tape
- analogue or digital
- SD or HD

Digital conservation formats

- Raw uncropped ungraded scan to DPX or TIF sequence
- Graded & restored DPX or TIF + Wav Soundtrack
- DCDM*

Distribution/exhibition formats

- DCP
- Apple ProRes .mov
- MP4 on SD Card for media player
ARTWORK
- The artwork is editioned

MEDIA
- Format changes have been a part of film production for a long time.
- This aesthetic may be integral to the artwork
- The film artwork may be acquired as digital rather than analogue object

COLLECTION
- The majority of TiBM artworks in the collection are not film-born

DISPLAY
- Collection works are displayed for years at a time, 7 days per week

HISTORY
- The full production history may be obscured or simply forgotten
- There may have been previous conservation
- A new “definitive” digital master may be offered in future

CONSERVATION
- Many analogue preservation are obsolete
- Those remaining are increasingly expensive,
- There are decreasing opportunities for hands-on film handling experience
- The number of ways to scan a film, and the resolutions and bit depths, are still increasing,
- It may not be possible to have direct access to the master materials
- Analogue and digital archiving or
- Digital-only?

ACCESS
- It may not be possible to have direct access to the master materials
- The lab may be overseas

PLAN
- Check your reasoning
- Check your budget
- Plan your workflow
- Check your budget
- Check your reasoning
So far so familiar

• Historically, this workflow is familiar
• Any generational loss within the production itself at levels accepted by the artists themselves as part of the process.
• The master reel(s) are clearly defined
• A clear preference for adherence to the currently available photochemical film archiving workflows is stated
• Digital archiving is permitted for future proofing
• This conservation is a relatively straightforward, albeit slow and expensive process

But wait a minute...

• Is there the edited master negative or positive accessible?
• If not what is available?
• How is this accessible?
• Which facilities are available/preferred by the artist?
• What are the display specifications?
• Are there multiple master formats?
• If so, which came first?
• Where are the intersections?

(and the soundtracks?)
Aldo Tambellini, Black TV, 1969 insert video
2-channel synchronized black & white 16mm film with sound, 10 minutes
ALDO TAMPELLINI
BLACK TV, 1969

1/2" VIDEO ARTWORKS & TERRESTRIAL TV NEWS BROADCAST

16MM CAMERA USED TO FILM REVERSAL POSITIVE FROM TV SCREEN

PRODUCTION & EDIT

2013: Internegatives
2013: new optical sound negative
2016: historical reversal projection prints

1965: master magnetic soundtrack
1965: master reversal 182

EXHIBITION & CONSERVATION

16mm MASTER

2013: Fine Grain Positives
2013: Sound scanned to 24 fps 24-bit 48 kHz wav
2015: Sound scanned to 24 fps 24-bit 48 kHz wav
2016: 16mm optical sound negative
2018: Combined fully timed answer print
2018: 16mm combined checkpoint (match)
2018: 4k cropped and graded DPX sequences
2018: 4k full-frame raw DPX sequences

4 (!) sets of 4K DPX

16mm Film Master Formats
16mm Film Exhibition Formats
Analogue Video Master Formats
Analogue Video Exhibition Formats
Digital Archival Master Formats
Digital Duplicating Master Formats
Digital Exhibition Formats

2015: 4K Graded DPX Sequences
2015: 4K ProRes Screening File
2018: 4K ProRes screening file
Graded scan of Reversal master

Graded scan of fine grain master
Assessing levels of detail via email

Reversal (positive>positive) print vs positive>negative>positive process

“I'm attaching pictures of the newest print next to the reversal--the detail in the TV screens is being blown out of the reversal, so we're thinking we're going to make it about 2 points lighter, which will be subtle, but the whites should be closer to the Rev. while keeping the detail intact.

Our print is the one on the left, and the reversal print is on the right.”

- Laura Major, Colorlab (via email 2018)

2018 Digital archiving:

- Raw 4K DPX: 1,500 GB
- Graded 4K DPX: 1,500 GB
- Soundtrack: 178 MB

Analogue:

- 4 x duplicate negatives
- 4 x check prints
- 2 x fine grain masters
- 1 x optical sound negative
Tina Keane
Faded Wallpaper, 1988
Single channel video, colour, sound, 20 minutes
Tina Keane
Faded Wallpaper, 1988

LOST
Tele-Recording
To 16mm negative

Surviving
16mm prints

Production
Edit

Umatic Lo-band Master

1988: exhibition formats for CRF display

1988: tele recorded to 16mm negative & optical sound. These Film Elements LOST

1988: 16mm combined colour release print 1

2016: 2K ProRes output at 4K

2017: 2K raw DPX sequence

2017: 34-bit 48 kHz dual channel mono raw

2017: 2K Raw dpx sequence scanned for

2017: 24-bit 48 kHz dual channel wav for audio

1988: 16mm combined colour release print 2

2017: 10-bit uncompressed mov

2018: mp4 exhibition format

16mm Film Master Formats
16mm Film Exhibition Formats
Analogue Video Master Formats
Analogue Video Exhibition Formats
Digital Archival Master Formats
Digital Duplicating Master Formats
Digital Exhibition Formats

Digital Archiving
1988 in 2018

- Two versions of Faded Wallpaper were archived digitally.
- It was decided not to print the digital files back to film.
- The decision whether to project the video file or the digital film restoration is dependent on curatorial context.
Ben Rivers
Slow Action, 2010

4-channel synchronised HD video, or single channel 16mm film projection,
colour, sound, 11 minutes
(colour, sound, 45 minutes)

(soundtrack via wireless headphones)

Installation view, Doosan Gallery Seoul 2013

Film still
Ben Rivers
Slow Action, 2010
Single-channel 16mm film, colour, sound, 45 minutes
4-channel synchronised HD video, colour, sound, 11 minutes
Definitely different

Telecine from camera negatives

Raw uncropped RBB 10-bit scan, 2377 x 1782

Original HD telecine edited to 4-channel, 1920 x 1080 letterboxed

Digital production proof from raw dpx, 2048 x 853
Other differences:

Slow Action contains both colour and black and white footage, but is printed entirely onto 16mm colour stock:

- The camera negatives, and all digitisations of the negative, all have “true” black and whites.
- All 16mm components derived from the negatives have black and whites with a degree of tinting from the colour processing.

Introduction edit:

- Ben re-edited the HD 4-screen intro sequences (black and white close ups of faces) after the 16mm sequence had been finalised differently.
- This difference was retained.

Audio:

On Ben's own master sound negative it transpired that the the sound somehow drifted in and out of sync at certain points.

It was possible to strike a new optical sound negative from the wav audio with correct sync

Cinema Future:

Ben is considering 35mm Cinevator prints to safeguard analogue projection
Thank you!

Now Showing:
• Ben Rivers: Sonic Terrains, Starr Cinema, 27 October 19.00h
• Tina Keane: Visions in the Nunnery, The Nunnery Gallery, Bow, until 28 October
• Aldo Tambellini: Tate Modern Level 4 Solo Display until 2019

Images:
Courtesy Tate and the artists

Diagrams based on:
https://dnapainter.com/tools/probability

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