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Internet and its Influence on
Quality and Authenticity of Audiovisual Documents
or
Audiovisual Content Delivery between
Gourmet and Fast Food.

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Audiovisual quality:

Constant crescendo from beginnings late 19th century
until today

Continuous process to overcome technical imperfections

Aim: to match reality

Audio

Cylinders	1880s - 1929
Shellacs	1898 - 1950
Microgroove discs (vinyls)	1948 - 1990s
Late 1950s: stereo – “HiFi”	
Compact Disc	1982
DVD audio: “High End”	1990s

Film

Silent film	1890s
Sound film	1928
Colour film	1930s
35 mm film standard to date!	
Widescreen formats and multi-channel sound systems	1950s
Surround Sound and 3D gaining perfection	
Digital film production enables transrealistic illusions	
Digital Cinema Initiative	2002

Video

Standard definition – SD		1950s
High Definition – HD and 3D	(4xSD)	2000s
NB: HD ≠ film !		
Ultra High Definition - UHDTV	(4xHD)	2013

Summary: Audio, Film, Video ever higher perfection
Yardstick: Reality, or illusion thereof

Digital signal representation of high quality av content is data intensive !

Audio CD quality	0,635	GB/h
Audio archival quality	2	GB/h
SD Video	120	GB/h
HD Video	500	GB/h
35 mm Film	2000	GB/h

Storage originally very expensive, meanwhile affordable

Real time transmission – broadcast as well as via lines -
(still) a bottleneck

Consequently, dissemination of high audiovisual quality originally restricted to carriers (CDs) or cinema

Around 1990: digital signal “compression” (actually: data reduction) became possible:

Psycho-physiological basis: not all details of acoustic signals and images are perceivable

Working Groups JPEG, MPEG developed reduction standards

Sophisticated algorithms permit reduction of data to a fraction of their original size without (significant) loss of audio or image quality, e.g.

Audio - CD vs MP 3: 12:1

Video, film -

analogue or linear digital vs compressed: up to 100:1

Data “compression”

- precondition and backbone of audiovisual content delivery via internet, and for digital television broadcast (terrestrial audio – DAB - upcoming)
- standard for digital video and film production
- However: imperfect, limits further use of data
- compressed copies not equivalent to analogue or linear digital originals, hence incompatible to archival principles
- Specifically high compression rates for internet significantly deteriorate quality

Discrepancy:

- ever growing perfection of audiovisual recording and reproduction quality

versus

- quality reduction by ever growing proportion of internet consumption

Question:

- is internet spoiling the sense of quality?

or

- was optimisation of av quality just a snobbish attitude of techno freaks for users who do not really see or hear quality differences?

Different trends for audio and video:

Audio: Home reproduction quality constantly decaying

- MP 3 seem to satisfy the great majority
- reproduction from portable equipment additionally supports decay of average consumption quality
- HiFi equipment, wide spread life style element of 1970s and 1980s, vanishing

Video: Home reproduction quality constantly growing

- ever bigger TV monitors and home cinemas
- blu-ray players for ultimate quality delivery

in discrepancy, however, to:

- increasing quantitative acceptance of poor reproduction though internet and portable equipment

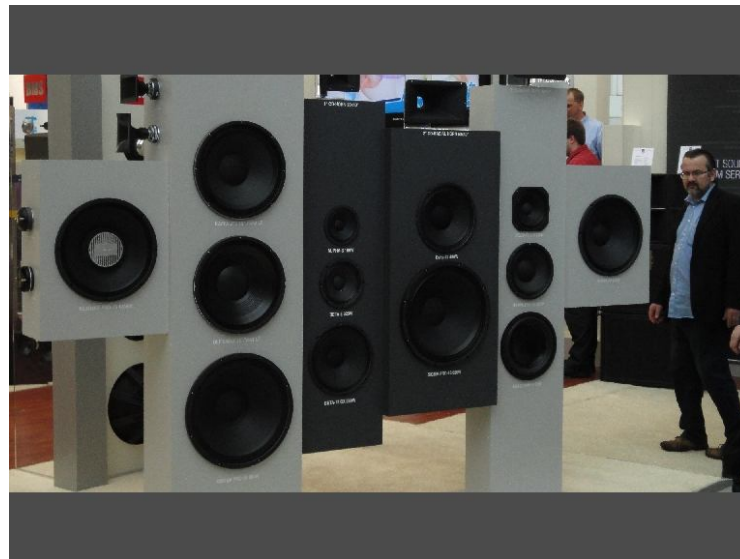
The introduction of 16:9 wide screen TV monitors, an indicator for audiovisual quality sensitivity

Aspect ratios

Classical film and SDTV		4:3
Wide screen films since 1950s	up to	3:1
HDTV		16:9

Solution for conflicting aspect ratios

Wide screen films on 4:3 video screens: “letterboxing”



Solution for conflicting aspect ratios

Classical 4:3 films or SD videos on modern 16:9 TV screens: “pillarboxing”



**Incorrect display of an 4:3 image on a 16:9 screen:
Geometrically distorted by stretching to fill the width**



Also a widespread mistake in presenting still images in museums on modern 16:9 screens)

Incorrect display of an 4:3 image on a 16:9 screen: Geometrically correct, but vertically truncated



Example from a recent historical documentary TV production



Example from a recent historical documentary TV production



Experiences suggest:

General sensitivity for audiovisual quality is low
Low quality acceptance is not the result of the technical constraints of internet, but general quality insensitivity makes internet quality tolerable
However, notorious bandwidth limitation of internet is the greatest indirect supporter of this insensitivity

Suggested consequences

Internet most powerful disseminator of contents

Distortion of reality must be avoided – content providers should adhere to accuracy

Bandwidth will remain a limiting factor

Audiovisual providers challenged to offer download of high quality parallel to browsing quality

and:

Adequate processing of audiovisual documents is part of media literacy

Internet, despite its limitations, potentially an ideal forum to sensitize users towards critical estimation of the audiovisual legacy

Thank you !

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