Lighting in urban dystopian film

unpacking the connection
to physical and emotional
perception

A guide, analysis and study of artificial light
and the connection to theme

by Leon Springer, April 2021

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Preface

Our modern urban[A2.1] world can be an increasingly emotionally cold world. Urban dystopian[A2.2] media certainly sees it this way with regular themes[A2.3] around loneliness, alienation, loss of identity and freedom, often caused by governments or corporations through the use of technology. Dystopian worlds are commonly in ruins for nuclear or climatic reasons, but a contemporary story world[A2.4] can also be dystopian as the shape of the story world is shaped by a filmmaker's views.

Dystopia questions whether the world's constant evolution isn't a devolution, self-destruction and extinction of the good in the world or humanity as a whole. Film lighting in urban dystopia concerns itself with this idea of devolution: humanity creating its own imperfect light whose qualities of light reflect societal issues through colour, brightness and softness. Urban dystopian cinema is often recognisable by the dramatic use of urban light that's closely tied to the specific dystopian vision.

The following report will look specifically at lighting in urban dystopian cinema of the past 60 years with a core focus on seven case study films. The report will discuss how film lighting for urban dystopia is tied to how we perceive light and light sources in reality and how filmmakers simulate and use these light sources to create mood and underline their themes.

Introduction to Film Lighting

White Balance and Light Spectrum

A camera sensor or film captures light (hue, saturation and intensity) scientifically. Light is determined by its spectrum and while brains adjust to colours and interpret the spectral information invisibly, a camera needs to be designated to the spectrum of light that's falling on a white object for it to appear as white.

Near black-body emitters like the sun or incandescent lamps have a linear spectrum with insignificant spikes or dips in green wavelengths, which means their output lies close to the Planckian Locus (Fig 0.1). A camera's white balance (which controls the colour temperature) can be set to a value on the locus which will make white objects under black-body emitters look white.
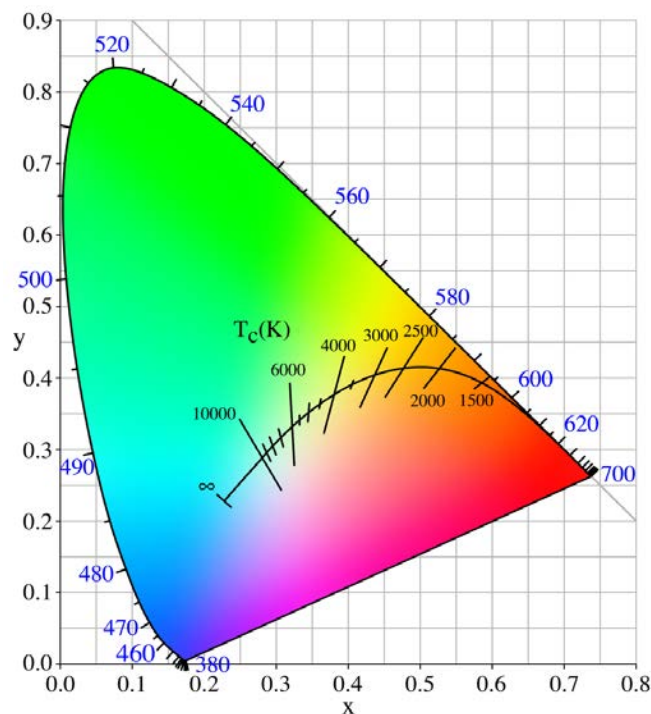
Fig. 0.1 The Planckian Locus

When the brain automatically adjusts to colours, it can make incandescent or sunlight look like white light. A scientific definition of white light (in which the spectral output is perfectly even) would result at around 5000 Kelvin on the Planckian Locus.

Digital cameras can be set to any Kelvin value while film stock is produced at a certain fixed value with 3200K (Tungsten Stock) and 5600K (Daylight Stock). Non-black body sources don't lie near the Planckian Locus, but can appear white by adjusting colour temperature and green-magenta balance, but this still creates inaccuracy as there are almost always dips and spikes in other places of the spectrum (Fig. 0.2).
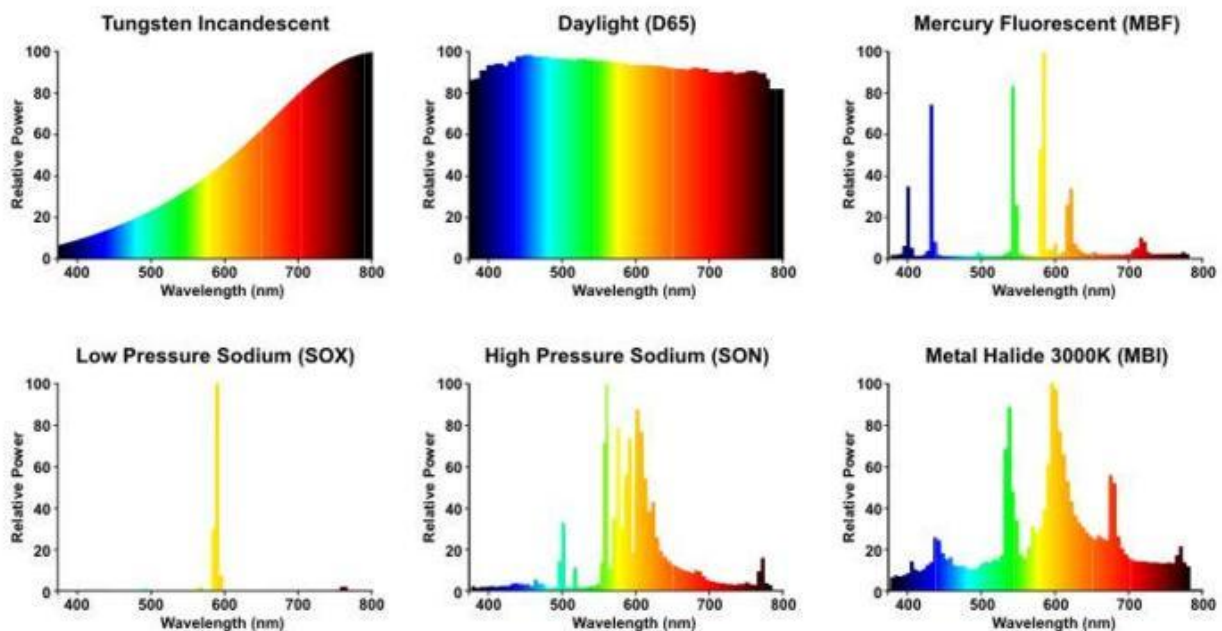
Fig. 0.2 Spectral Distribution of light sources

Because of the brain adjusting, our vision can only perceive a light's nature in relation to another light source. Cinematography, therefore, is about colour relationships and interpretation or about setting an ethos about what 'true white light' is...

An incandescent lamp shot with daylight stock will appear warmer than humans would perceive it on its own, but be accurate to perception in reference to daylight.

Brains correct green spikes from fluorescent light to white light but only without relation to sources without green spikes.

A low-pressure sodium vapour lamp only emits a single wavelength, humans see monochromatically under them but through colour receptors.

The accuracy issue is also a dilemma because the quality of light affects the brain and body subconsciously even if vision adjusts to it (Adamsson et al., 2018).

Lighting Qualities

Every light source is on a range between being a near point source (hard light) creating hard shadows and a large surface source (soft light) creating soft shadows. Both sources can have different optical designs that will make light either directional (light rays flowing in a single direction) or omnidirectional (light rays scattering in all directions). Directional light produces distinct shadows that signal where the light is coming from.

Coloured light opposed to spectrally even (=white) light has significant effects on the human psyche and can shape how a person perceives and acts in the world (Bellantoni, 2005, p. xxi-xxxiii]. Colour can be associated with both cultural elements and emotions. Colour psychologist Patti Bellantoni argues that the cultural element is more intellectual, but the emotional side is felt by all humans with perception patterns emerging across cultures (Bellantoni, 2005, p. 190).

Experiments by Josef Albers show that colour is relative and changes perception through context (Popova, 2013). Physically and perceptually, coloured light affects how

things look: Brown hair under saturated blue light will appear nearly black, this is because saturated blue barely has warm wavelengths to be reflected off the hair (Fig. 0.3).

Fig. 0.3 Brown hair appears black

Similarly, many artificial light sources[A2.8] have an uneven spectrum, even if the light appears white to the human eye (Fig. 0.4). This uneven spectrum results in poor 'colour rendering'; colours aren't presented accurately (Videomaker, 2013).
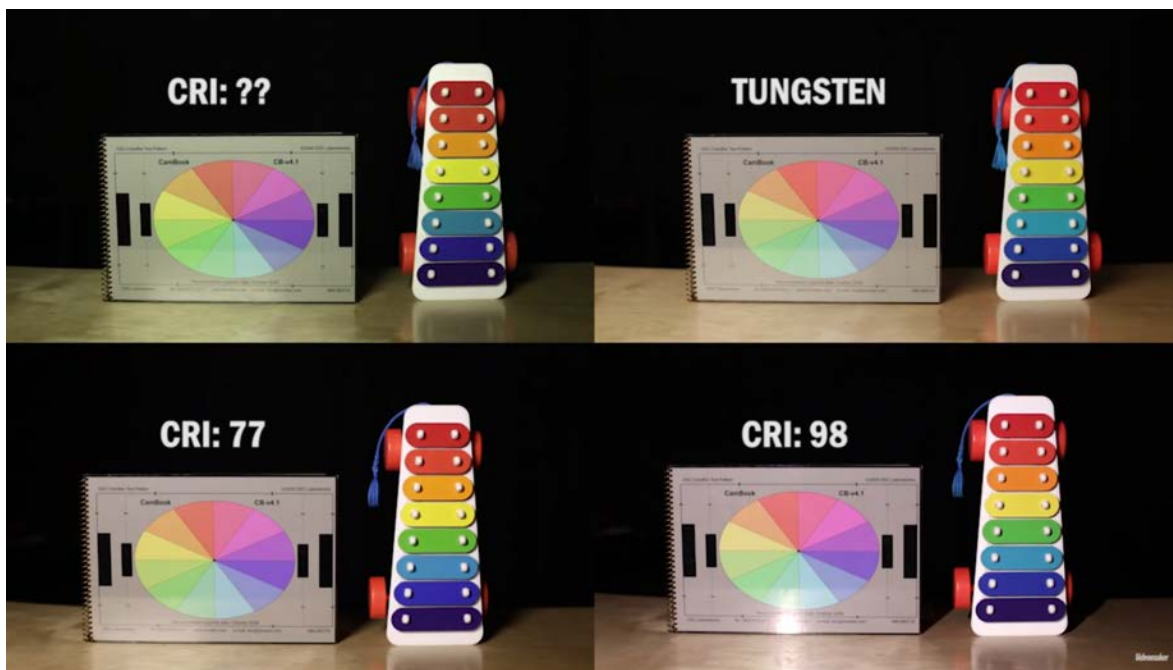
Fig. 0.4 Unbalanced colour rendering in Bicolour LED sources

An RGB LED replicating white light has dips in yellow and cyan (Fig. 0.5) which means orange objects will appear redder than their 'true colour' as they typically also reflect red light, which in this case there is more of.
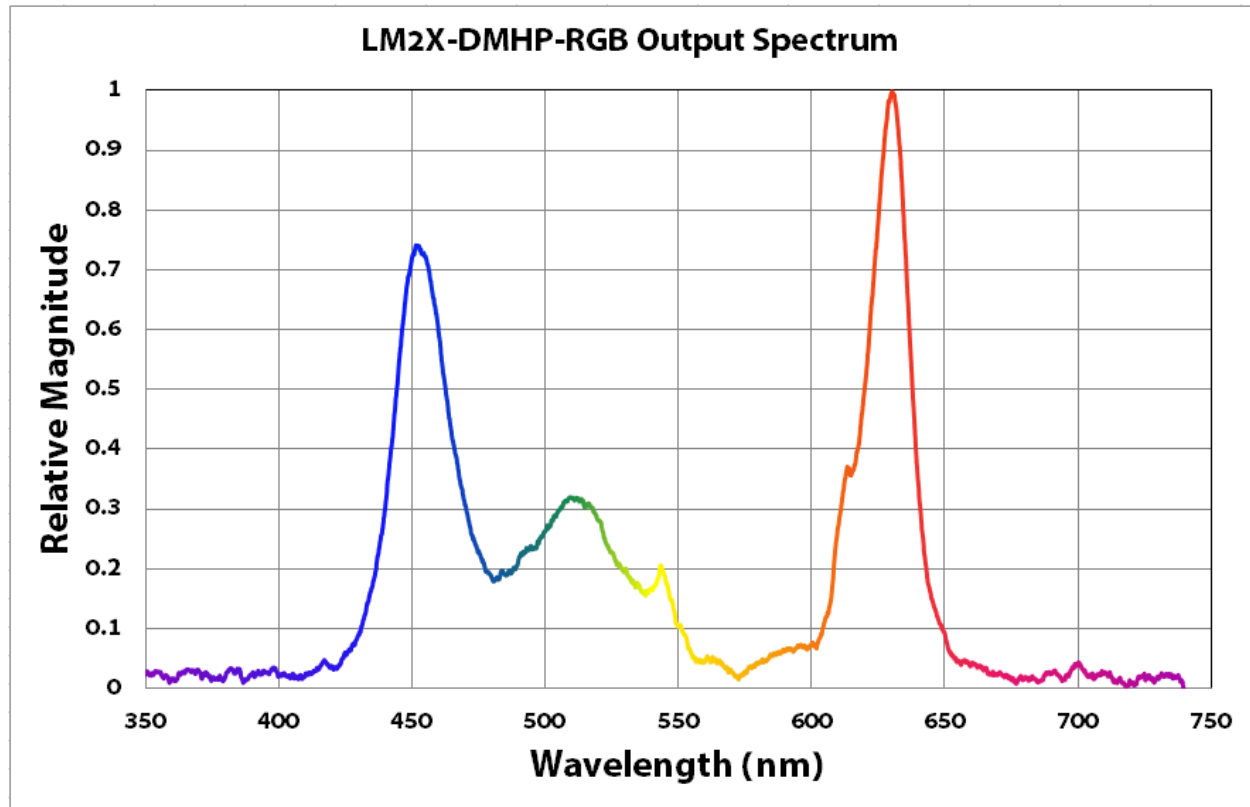
Fig. 0.5 Light Spectrum of an RGB LED

This interplay of object and spectrum means that colour and contrast in a frame is always determined by both lighting and art direction.

Hue/Heat Hypothesis

The Hue-Heat Hypothesis postulates that humans perceive orange light as warmer than blue light, proven alone by the use of terms like 'warm light' and 'cool light' for them. Research teams have proven the existence of the Hue-Heat Effect (D'Ambrosio Alfano et al., 2019), including a Japanese study measuring perceived temperatures in a room

with differing hues. Participants have generally responded to feel on average a degree warmer under warm light (Tsushima et al., 2020).

These results conducted with LEDs have implications on our general perception of light. The human mind may have developed to expect warm light to mean warmth because they traditionally did as firelight emits significant heat through infrared and the sun emits heat through ultraviolet. The sun of course is generally relatively blue except for sunrise and sunset, though it's warmer than ambient skylight, cloudy skies, dusk and dawn or the night sky. There is uncertainty whether humans perceive warm fluorescent fixtures and warm LEDs as less warm or artificial because of the missing ultraviolet and infrared heat or whether there's no difference in perception caused by the absence.

Circadian Rhythm

The Circadian Rhythm (the natural human process regulating the sleep-wake cycle) is proven to affect mood and concentration. This is proven by a Swedish study conducted at 56° longitude measuring the seasonal variation in mood caused by reduced daylight hours in the winter (Adamsson et al., 2018).

Another study from Daejeon proves that warm light made paper and computer tasks more uncomfortable than under cold light even if it's overall perceived as less comfortable (Lee et al., 2014).

Cold light also makes the body more alert and active, preventing the release of melatonin, a hormone causing drowsiness (Newsom, 2020). A study at the Maastricht University could prove that simulating a daylight cycle in hospital rooms can improve sleep duration, but there was no significant change in mental health (Giménez et al, 2016). What they did however prove, was that cold bright daylight (simulated or real) allows the production of melatonin later in the day.

Soft Lights

White Panels: 2001: A Space Odyssey (1968)

Genre: Science Fiction

Directed by Stanley Kubrick

Cinematography by Geoffrey Unsworth & John Alcott

Gaffer (uncredited): Bill Jeffrey

Special Effects Supervisor: Douglas Trumbull

65mm Eastman Color Negative 50T 525

'2001' depicts a future in which commercial space flight is trivialised. It tackles evolution and poses questions about artificial intelligence and existentialism[A2.6] in a future in which humanity knows its insignificant size amongst the stars.

The film is praised for its realism and scientific accuracy which carried over to its practice of using almost exclusively practical lighting (lights that are in frame). For a speculative science fiction film, it isn't particularly formalistic, leaving interpretation to the audience, therefore it's also not dystopian in its nature, but shares elements of dystopia. Certainly, pessimism is present in some aspects of '2001'.

It is an important film for dystopian media and film lighting, it's at the beginning of a turning point in film lighting when old conventions were broken and filmmakers started using coloured light instead of balancing all light to white[A2.9]. It also brought with it new ways of using practical light (Fig. 1.1). Especially soft lighting was historically only used for lighting a woman's face and otherwise hard light would be predominant (Kahl, n.d.).

Fig. 1.1 Practical, off-white soft lighting

George Lucas defined it as "the first time people really took Science Fiction seriously." Especially in the 1950s, Sci-Fi was predominantly monster films or tongue-in-cheek films (Fig. 1.2).

Fig. 1.2 Independent Sci-Fi of the 1950s

The crew of '2001' consulted with Nasa to create a realistic look. Though rarely as sleek and clean, spacecraft up until recently used fluorescent lighting for its low power and heat but also because soft light is more convenient (Fig. 1.3), now it is replaced with soft bicolour LEDs to create day and night conditions for the astronauts on the ISS (Let's Talk Science, 2018).

Fig. 1.3 Fluorescent Lamps aboard the ISS

The look of '2001' is guided by its careful production design limited to mostly whites, greys and a few reds and orange accents, the sterility of these whites is heightened by the use of tungsten sources on tungsten film stock, though the sources are often cooled down to a futuristic blue[A2.10] (Fig. 1.4).
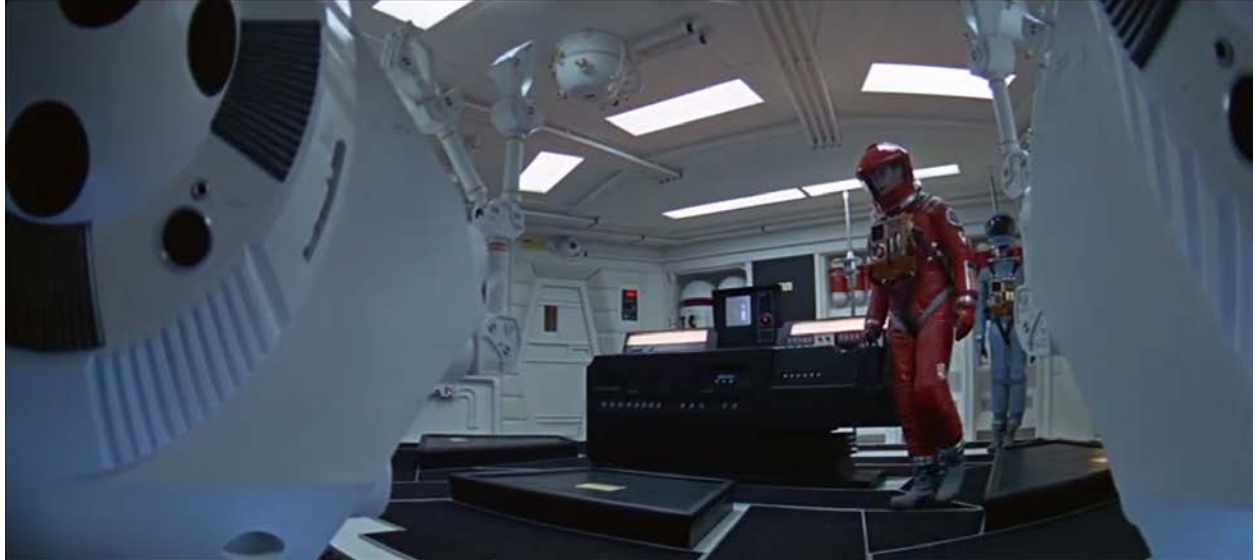
Fig.1.4 Soft white and blue light

The white ceiling tiles (Fig. 1.5), despite their futuristic design, reflect an office environment, oriented on the grid-like fluorescent lighting that was becoming commonplace at the time.

Fig. 1.5 Ceiling tiles reminiscent of fluorescent ceiling lamps

Fluorescent Tubes: Taxi Driver (1976)

Genre: Crime, Drama, Psychological Thriller

Directed by Martin Scorsese

Cinematography by Michael Chapman

Gaffer: Richard Quinlan

35mm Eastman Color Negative 100T 5254/7254

Taxi Driver follows fictional war veteran Travis Bickle through his work as a taxi driver in New York. The film is an exploration of modern masculinity[A3:Q.7], existentialism, loneliness and purposelessness.

Neither Scorsese nor cinematographer Michael Chapman thought the film was very realistic[A3:Q.8], but that it was emotionally truthful (Ebert, 1976); it was how they felt about New York[A3:Q.9], the unpleasantness of the look reflecting the paranoia one can feel when living below a certain income level (Schaefer et al., 2013).

Taxi Driver shows the reality of poorly installed cheap dim units as is common in factory spaces or low-income spaces where lighting can be an afterthought. This is reflected in the film by the sparse use of the tubes which are installed without intensifiers, the film hereby comments more on the low-income reality of poor dim fluorescent lighting, which is proven to have psychological and physiological implications.

Green is associated with nature and life but also decay and sickness (Bellantoni, 2005, p. 160) and it dominates the look of Taxi Driver at night. Green is present in the mercury-vapour street lamps that were long widespread in the United States (Wikipedia, n.d., N), as well as in the fluorescent lamps dominating much of the interiors and night exteriors (Fig. 2.1).

Fig. 2.1 Faces take on a sickly colour from the fluorescent top light

Green is the colour of nature, but green light is anything but natural. By bringing out the green imperfection of fluorescent lamps the film brings out the industrial or urban side of these soft lamps. The soft light washes over everything but leaves everything with a tint of sickness. The common yellows lose their glow and become more beige-green (Fig. 2.2).

Fig. 2.2

Chapman lights faces mostly with white light per convention but regularly leaves fluorescent lamps uncorrected (no filter reducing the green shift) in the film as long as they don't hit the front of an actor's face. Soft light sources are used commonly, but often with directionality, creating contrast that brings more attention to the uneven light (Fig. 2.3).

Fig. 2.3 Lighting is insufficient for illuminating the room

The use of overhead lighting creates shadows that are atypical for films at the time. This adds an element of realism or truth but also the dramatic effect of lighting most of the face except the eyes (Fig. 2.2).

The lack of strong hard light in Taxi Driver underlines the world's same-ness; how everything blurs together in a lonely life without meaning. The low-contrast softly lit atmosphere becomes an emotional expression of a world without highlights both in lighting and in life.

Discoloured Fluorescents: Blade Runner (1982)

Genre: Science Fiction

Directed by Ridley Scott
Cinematography by Jordan Cronenweth
Gaffer (uncredited): Richard Hart
Production Design: Lawrence G. Paull
35mm&65mm Eastman Color Negative II 100T

Set in 2019 Los Angeles, 'Blade Runner' shows a decayed reality in which only poor people are left in the run-down cities of an almost uninhabitable earth. The film uses synthetic humans called 'replicants' to ask questions on the nature of humanity and the impact of technological progression on it.

Blade Runner is defining for the cyberpunk subgenre that is inherently about urban dystopia and the idea of high tech/low life. Despite Ridley Scott's less-alarmist view[A3:Q.1 & Q.2], the film is seen as one of the originators of cyberpunk which typically features a world that is hyper-capitalist, broken, unfair and perpetuates loneliness and alienation, which are all ideas present in the film.

Production Designer Lawrence G. Paul described the world as one where the city was poorly maintained. The people who lived there would retrofit things out of necessity (Lightman, 1982, B). There is a great amount of colour coordination in the film with almost exclusively orange and blue hues. The human association of orange as romantic and nostalgic is used cleverly as a weapon; present in the world of Tyrell, the only one in the city who is doing well, who the audience thereby feels a dislike towards (Fig. 3.1).

Fig. 3.1 Tyrell's Bedroom lit with warm candlelight

The rest of the world is coated in pale blue hues which add to the film's dreamy nature as Bellantoni states blue is a colour that humans react to with calm and inaction, the film possibly suggesting that this is a world where this power structure is unchallenged, especially, as Bellantoni states it can evoke sadness and powerlessness (Bellantoni, 2005, p.82), as she elaborates on the 'Tears in Rain' sequence[A3:0.3] (Fig. 3.2).

Fig. 3.2 Roy Batty reflects on his life

The film's use of soft blue light is an emotional expression, mostly motivated by the use of the ambient night sky mixing with white lights of the city. Occasionally, however, the film uses cyan light (Fig. 3.3); the result of a cool-white fluorescent lamp photographed with tungsten film stock, a look that was also explored in Taxi Driver.

Fig. 3.3 The soft light is blocked from reflecting onto Deckard to keep high contrast

Blade Runner makes use of warm fluorescent tubes, which results in a pale yellow due to the green shift and warmer than Tungsten colour temperature (Fig. 3.4).

Fig. 3.4

Fluorescent Top Light: Fight Club (1999)

Genre: Drama

Directed by David Fincher
Cinematography by Jeff Cronenweth
Gaffer: Claudio Miranda
Eastman EXR 100T 5248/7248 Negative
Kodak Vision 250D 5246/7246 Negative
Kodak Vision 500T 5279 Negative

Fight Club focuses on 'the narrator' creating an underground boxing club and later a terrorist organisation to combat the struggles of his life (consumerism, insomnia, emasculation, isolation and purposelessness). Violence is his outlet and answer to these struggles.

There is a case to be made to label Fight Club as magical realism[A2.5]. Certainly, the lighting, while dark and extreme is always motivated and often done with practical sources. Cinematographer Jeff Cronenweth states:

"*In all of the 'normal' reality situations, the look was supposed to be fairly bland and realistic. For the scenes when he is with Tyler, though, David wanted the look to be more hyper-real in a torn-down, deconstructed sense*" (Probst, 1999).

Whether realism or not, Fight Club, like Taxi Driver, is about the emotional truth of the filmmakers, a response to the 1990s (a time of relative financial and societal stability in the U.S.) in which a great number of well-earning Americans felt that their life had no meaning or purpose.

The film features both corrected and uncorrected fluorescent lamps. They are also white-balanced to, so instead of creating the turquoise look of Blade Runner the uncorrected fluorescent lamps in the 'low-life' parts of the world make the skin tones green (Fig. 4.1), the way we'd associate with curses and ghosts (Bellantoni, 2005, p.160), just like these characters (especially Marla) feel cursed with existence.

Fig. 4.1

Corrected fluorescents emit the soft white ceiling light present in 2001: A Space Odyssey but combines it with the directionality of Fig. 2.2 from Taxi Driver. The result is a soft directional light that wraps around edges in a pure and peaceful white light (Fig. 4.2). Overly long bright cool-white fluorescent exposure can lead to a lack of melatonin production, though the irony is that the narrator's apartment has warm lighting which would mean that the character's insomnia does not seem motivated by light.

Fig. 4.2 The angle of the light lets the iris fall black

At this time in the film industry, soft light was embraced more and is reflected in the rise of Kino Flo fixtures, which are flicker and green corrected fluorescent film lights that are highlighted in an ASC article (Fig. 4.3): "a diffused Kino tube offers a touch of soft toplight ambiance — a method used by Cronenweth throughout the film." (Probst, 1999).

Fig. 4.3 A Kino Flo fixture creates unpleasant highlights on the character

Because light is coming from directly above it creates specular highlights on areas of the skin that are typically unpopular to have specular highlights on in film lighting, it also obscures the eyes and brings out the skin imperfections as Gaffer Claudio Miranda states: "Toplight seemed to help with the prosthetics as well, by showing off the integrity of the wounds without revealing too much." (Probst, 1999).

Neutral White: Wall-E (2008)

Genre: Science Fiction, Romance
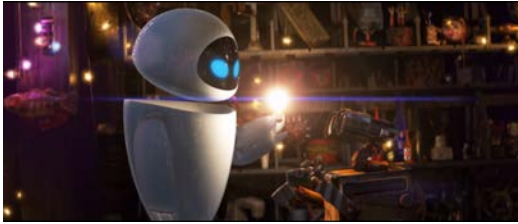
Directed by Andrew Stanton
Cinematography (Camera) by Jeremy Lasky
Cinematography (Lighting) by Danielle Feinberg
3D Computer Generated (CG) Animation

The Pixar Animations film follows a robot who's cleaning up a deserted seemingly uninhabitable earth. The film has clear ecological themes of waste and climate change. The film links this with a hyper-capitalist society that uses technology to manipulate humanity into complacency, but under an unsustainable business model that destroys the earth and real human interaction.

Stanton sees the film as an exploration of our increasing consumerism and uselessness (Poland, 2009), which ties into the popularisation of mobile internet in the early 2000s as well as the presidential candidacy of Al Gore bringing climate issues to awareness.

3D CG Animation at the time predominantly used balanced or 'flat' lighting, minimising lighting contrast and shadows. The crew of Wall-E consulted with cinematographer Roger Deakins to achieve a more expressive and risky look (J. Deakins, 2020).

Lighting cinematographer Danielle Feinberg mentions having looked at live-action science fiction for inspiration; so to see commonalities to the lighting of 2001: A Space Odyssey is no surprise with the soft white lights. Though here, 40 years later, the white seems no longer motivated by covered fluorescent tubes and more by free form screens and white LEDs that were starting to emerge as the future of illumination (Fig. 5.1).

Fig. 5.1 A cleaning robot moves through the perfectly sterile spaceship

The soft but contrast-rich lighting and production design of the spaceship's maintenance areas are an effective dramatic contrast to the manufactured artificial world on the main deck (Fig. 5.2), where all drama is lost and everything's in uniform illumination. This juxtaposition is similar to the one in Fight Club, where reality looks elegant, bright and cheery but it doesn't inspire true happiness. A pessimistic view could say that it's a response to a society in which there's materialistic improvement, but a decline in wellbeing. Thereby driving forward that materialism and consumerism have no relation to wellbeing despite appearance.

Fig. 5.2 Even soft light

Wall-E takes inspiration from its predecessors, but adds new elements, very dominantly the screen, invading more and more of our lives. Screens in Wall-E are numerous and always emit either a soft cool-white or neutral white light projected onto the person in front of it, again perpetuating the meaningless consumerism through white light (Fig. 5.2).

Soft LED: Blade Runner 2049 (2017)

Genre: Science Fiction

Directed by Dennis Villeneuve
Cinematography by Roger Deakins
Gaffer: Bill O'Leary and Krisztián Paluch
Production Design: Dennis Gassner
Arri Alexa Mini, Alexa Plus, Alexa XT

The sequel set 30 years after the original, unlike many contemporary cyberpunk works is not retrofuturistic[A2.7] but instead continues the world and infuses it with contemporary futurism. It distances itself from the captivating and exciting vision of the original Blade Runner and has a distinctly more bleak reality. Focusing on xenophobia against the replicants, the film again asks what makes someone human.

Villeneuve sees his films as a necessary contrast to the utopian cinema of the United States, specifically about Blade Runner 2049 he says "The first Blade Runner is the biggest dystopian statement of the last half century. I did the follow-up to that, so yes, it's a dystopian vision of today. Which magnifies all the faults."[A3:Q.20] (Jasper, 2017).

The film takes a more realistic approach with clear motivated lighting. The city in Blade Runner 2049 is predominantly lit with large surface panels of white light, continuing the idea of perfectly soft and pure light like in 2001: A Space Odyssey, but here it's often mixed with grey production design similar to Solaris[A4:Solaris] or Wall-E. The effect is the same as in Fight Club with specular highlights and shadows in the eyes (Fig. 6.1).

Fig. 6.1

Overall the lighting is soft and pleasant, which becomes unpleasant through the make-up that reveals KD6-3.7's rough face the same way it did in Fight Club. Here the even softer look makes the wounds and roughness of the face stand out more because of the combination of a high angle and soft shadows (Fig. 6.2).

Fig. 6.2

The grey and white spaces become overwhelming, the absence of colour and details through light makes the spaces look sterile. Again the idea of a sterile life not being an interesting life comes out (Fig. 6.3).

Fig. 6.3 Minimalism in production design and lighting

Blade Runner 2049 also features a series of green tube lights, likely meant to represent fluorescents. They are rather dim and have a strong artificial colour, the film draws attention to them by underexposing the surroundings towards silhouettes (Fig. 6.4). The film brings the absence of natural light that's present in the rest of the film (with notable exceptions discussed later) to attention.

Fig. 6.4

The film also uses soft ambient skylight through fog frequently for exteriors (Fig. 6.5), a common occurrence in coastal regions, especially in the U.K. where Cinematographer Roger Deakins grew up and likely took inspiration from. Ambient skylight leads to significantly reduced light intensity and creates an extremely soft light, thereby perfect at evoking the emptiness and inactive decaying world of the film.

Fig. 6.5 Dark cloudy weather stands in for pollution

Saturated Fluorescents: Joker (2019)

Genre: Psychological Thriller

Directed by Todd Phillips
Cinematography by Lawrence Sher
Gaffer: Steve Ramsey
Arri Alexa 65, Alexa LF, Alexa Mini

Joker is set in the 1980s and follows Arthur Fleck's transformation into 'The Joker'. Arthur suffers from loneliness and his mental health is poorly treated by his therapist and society around him. He has a strong anti-capitalist sentiment, killing three rich people that treat others and himself badly.

The film uses the 1980s to show contemporary issues arising from toxic masculinity in a more extreme time, this resonates with audiences as today's society still struggles with definition and place of masculinity. Where Taxi Driver was concerned with the criminal underworld, this film is more interested in the immense wealth gap and the public opinion and inaction towards it. A concern that is popular in all above case studies since Blade Runner. The public view in dystopian cinema has shifted from totalitarian 1984-like governments to mega-corporations with unparalleled power that manipulate humanity to their benefit.

Joker incorporates lighting styles from the other case study films. Cinematographer Lawrence Sher states "there's a sloppiness to location photography that I've always appreciated" (Deakins, 2021). He tried to replicate this type of lighting saying for an office space that should feel utilitarian and industrial he'd leave the fluorescent green spike instead of correcting it to clean white (Fig. 7.1).

Fig. 7.1

The film did not have actor marks and rehearsals, which tremendously affects lighting. Sher said he was thinking "how can I light the spaces, not the faces" (Hemphill, 2019). It does show that contemporary mass audience films can choose to not always light faces carefully, but that an amount of realism and 'imperfection' is possible.

Joker uses cyan and yellow fluorescent lamps with very strong colour. Sher explains the cyan colour of fluorescents (Fig 7.2) is the result of a cool fluorescent tube photographed with incandescent white balance. The effect is a natural one, even if our eyes would usually not see it that way in isolation (Sher, 2019).

Shooting the fluorescents this way, Sher says, was a choice of being realistic to the typical green spike one would get at the time, but also because he liked cyan as a contrast colour in the film (Sher, 2019).

Fig. 7.2

The hospital in Joker is not decayed like most of the story world and is lit in a soft white like in Blade Runner 2049 (Fig. 7.3 & 6.1).

Fig. 7.3

In conversation with Sher, James Deakins makes the hypothesis that comedy lighting is flat because it's about the comedians and their movement in the set. Sher says he thinks that's partly true, but he thinks it's not just specific to comedy. In comedy, it's also partly caused by not having much time for lighting to keep the performance from actors fresh (Deakins, 2021).

Fig. 7.4 White low contrast TV lighting

Saturated Lights

Neon

Neon lamps are often romanticised for their colourful and exciting look, that strong look is the same reason why they're used for advertising storefronts; they stand out.

Urban dystopia often uses a large number of neon lamps to show a visually cluttered world. Neon lighting is interesting because it is deemed beautiful but is also a symbol for advertising.

In Taxi Driver neon light is present in poor places (Fig. 8.1) and speaks about the constant artificial light of the never-sleeping city.

Fig. 8.1 Bars as 'low-life' areas

Blade Runner uses neon light exclusively in the streets, as visual consultant Syd Mead describes, the future in Blade Runner is one where decent people don't live below 60 stories (Lightman, 1982, B). The cluttered neon streets become a cluttered and messy world where coloured light from advertising is bombarding (Fig 8.2).

Fig. 8.2 Coloured light softly washes over Deckard

This ties into essayist Jonathan Crary's label of the 21st century as an 'attention economy', in which corporations are fighting for 'eyeballs' (Crary, 2014, p75). He sees television addiction as an addiction without a rush, people in studies have reported feeling worse when watching TV the longer they did. To him, the aim of the media was never 'mass deception' but rather achieving a state of 'neutralization and inactivation' (Crary, 2014, p82-88).

This dystopian idea is present in the inactivating effect of dim blue light, but also in the use of advertising and neon light in all three case study films of the 21st century. Blade Runner 2049 specifically uses these cluttered neon lamps in combination with moving holograms and animated screens (Fig. 8.3) to symbolise this growing power of media presence that is trying to grab attention, sell products, continue consumerism and neutralise people.

Fig. 8.3 Sensory overload in the background

Sodium Vapour

Low-Pressure Sodium Vapour (LPSV) street lamps have notoriously poor colour rendering as shown in Fig. 0.2 leading them to render the world monochromatically in shades of yellow and black. They do however have advantages even today where more energy-efficient lamps exist. LPSV has less interference with astronomy, penetrates fog better due to limited spectral refraction and doesn't disturb human and animal's sleep cycles as much as cold light (Lamptech, n.d).

Architect Thomas Schielke found that when shifting from LPSV to LED "residents perceived the change to a cooler color temperature as less romantic" and "In another city the residents called the new LED street lighting 'zombie lights' and 'prison lighting'" (Schielke, 2019).

Crary comments on our society of 24/7 illumination, where street lamps blare through our windows and where darkness is banished. To Crary street lighting is a hallmark of

society shifting towards 24/7 functioning, beginning with factory lighting in the industrial revolution (Crary, 2014).

Fight Club regularly uses indistinct pale yellow lights, similar to High-Pressure Sodium Vapour lamps. This romantic warm and pleasant colour tone, mostly motivated by incandescents, is used regularly for moments in which conventional manliness is portrayed, tricking the audience to believe in Tyler Durden's hypermasculine world.

Fig. 9.1 The narrator and Tyler Durden romanticise their fight

Neither Blade Runner, nor Blade Runner 2049 use Sodium Vapour distinctly, but they both use saturated yellow light (Fig. 9.2 & 9.3) to contrast the cyan of fluorescents. These colours aren't complimentary, but they are both analogous to green, the most unpleasant light and they are less pleasant neighbours of their analogous colours orange and blue.

Fig. 9.2 Fluorescent tubes with yellow filtered tubes

Fig. 9.3 Fluorescent light lines the ceiling, indistinct yellow catches in the fog

Joker uses this contrast always motivated by fluorescent and sodium vapour lamps (Fig. 9.4). Sher describes the look of LPSV as "A little bit gross, but for me, quite beautiful." (Sher, 2019).

Fig. 9.4 Hard sodium vapour lamps are contrasted with soft fluorescents

Sodium Vapour lamps are hard light sources that render only contrast, not colour. Monochromatic hard light creates high contrast. Joker uses this to make the city seem impersonal, especially when Arthur kills the third of three people it seems almost impersonal (Fig. 9.5).

Fig. 9.5 Detail is obscured through the monochromatic light

Contrasting Sources

Incandescent

Incandescent light is naturally romanticised because of its orange colour, its spectrum is balanced and pleasing on skin; essentially, it's the most natural and nice that an artificial light source can get. This tungsten light is used to provide contrast to the unpleasant urban world outside of the home in Wall-E (Fig. 10.1) and Joker (Fig. 10.2), Sher describes it as "warm, comforting, tungsten light, it's lamps, it's warm, it's inviting" [A3:Q.4] (Sher, 2019).
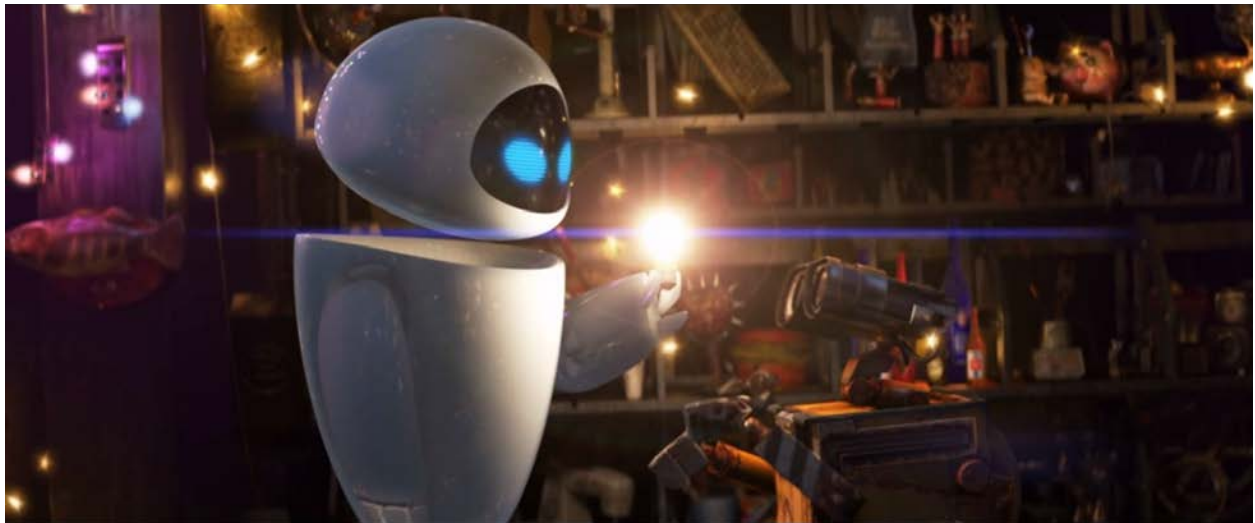
Fig. 10.1 Contrast provided by the hard tungsten lamp creates a romantic look

Fig. 10.2 Tungsten bulb diffused by a lampshade

Similar to Blade Runner, Fight Club criticises conventional pleasantness as an inadequate space for an emotionally empty world, it's alienating. The narrator has created a home that is lit in a pretty way (Fig. 10.3) but has not contributed to his happiness.

Fig. 10.3 Warm soft tungsten lamps

Fire

Fire is 'natural' but can also be created. Firelight is orange and often dim, creating high contrast and a romantic look.

Fire in these dystopian films is used in ironic ways. In Blade Runner orange stands for the world of the rich, but seeing it in the streets evokes a primitive reality, people are using fire to find warmth in this cold world (Fig 11.1).

Fig. 11.1

Fig. 11.2 Wall-E uses romantic light as a way out of its pale-orange dystopia

In Blade Runner 2049, fire is nostalgic (Fig. 11.3) and therefore used by the rebels, planting the idea that technology has created a cold artifice and that the way forward is the way back to more natural light.

Fig. 11.3 Nostalgic flashback

Fig. 11.4 The rebellion meets

The burning streets at the end of Joker are celebrated as a triumph, the warm lighting suggesting that Arthur has found a way of being at peace and comfort, leaving the audience in discomfort... (Fig. 11.5)

Fig. 11.5

Daylight

Daylight, diffuse or not, is the dominant natural light that has decreased in prevalence and importance through the growth of artificial lighting. Direct sunlight can be harsh and blinding, while the shade can leave one in soft blue melancholy. Sunlight damages our skin, can be frustratingly hot and headache-inducingly bright. And yet the absence of it is the absence of its activating effect and therefore can symbolise the absence of 'feeling alive'.

Fig. 12.1 The only hard light in space: sunlight

Cinematographer of Taxi Driver Michael Chapman mentions how at night the danger is apparent, but at day he said, he struggled to portray it as the sun is hard to control to achieve that feeling (Schaefer et al., 2013, p. 106). Nonetheless, Travis is often framed in the soft ambient light of the city, the activating sunlight that makes one feel alive is absent from the picture (Fig. 12.2).

Fig. 12.2

Fight Club's depiction of direct sunlight is garish and the shadows are dark. This seems to fit the psychology of Fight Club where urban light reflects the inner world of the narrator better and is necessary to portray his troubles. Making sunlight look nice would seem like a counter-argument to this.

Fig. 12.3

Fig. 12.4 Unpleasant bright garish sunlight

Fig. 12.5 Joker mirrors the soft ambient city light of Taxi Driver

Audience Perception Study

Introduction

A series of photographs matching in expression and framing with changing lighting styles were rated on emotional response by an anonymous audience. A detailed explanation on the methodology for creating the photographs, the survey, mathematics and reasoning behind the conclusions, can be found in the appendix[A1].

Methodology

Lighting was judged by participants on the following emotions:

Happy   <->   Sad

Anxious   <->   Peaceful

Empty   <->   Joyful

High Key Lighting was used to measure the effect of conventionally pleasing lighting and to have contrasting 'neutral' data.

Fig. 13.1 Image 1B

Cool-White Soft Top Light approximates the fluorescent and white panel looks and was achieved with a Kino Flo fixture in front, above the subject similar to Fight Club.

Fig. 13.2 Image 2B

High Contrast Saturated Red is an extreme look that occurs frequently in the case-study films.

Fig. 13.3 Image 3B

Hard Sodium Vapour is an extreme look with fascinating psychological effect.

Fig. 13.4 Image 4B

Results

The **high key lighting** was perceived as the happiest, peaceful and joyful out of all of the pictures but still rather neutral, indicating it did not evoke strong emotion. The thoughtful 'B' image had a more positive reaction, which may suggest that a thoughtful person in this lighting is thought of as thinking about happy and peaceful things.

The **cool-white soft top light** was associated with sadness, anxiety and emptiness, scoring especially high on anxiety. The thoughtful expression was perceived as very sad and empty. This lighting setup has the lowest standard deviations which suggest that the emotional reaction is quite universal.

The **high contrast saturated red** images evoked especially emptiness but also sadness. It didn't seem effective to suggest either anxiety or peacefulness.

Hard sodium vapour light was surprisingly similar to the soft light; associated with sadness, anxiety and emptiness. Though a higher unclarity on anxiety.

Discussion

The latter three lighting styles were associated significantly stronger with emotions present in urban dystopia, especially anxiety and emptiness. The considerably more neutral results of the high key lighting similar to the narrator's apartment in Fight Club (Fig. 10.3) supports the idea that this type of contemporary modern lighting elicits more normality or monotony than happiness.

Science fiction author Christie Hartman has studied the colour red in 2001: A Space Odyssey and described it as a loud and messy contrast to the sterile nature of the spaceship (Fig. 14.1). Red is the colour of blood and reminds the audience of human

existence (Hartman, 2014), which the opening of Taxi Driver draws attention to (Fig. 14.2).
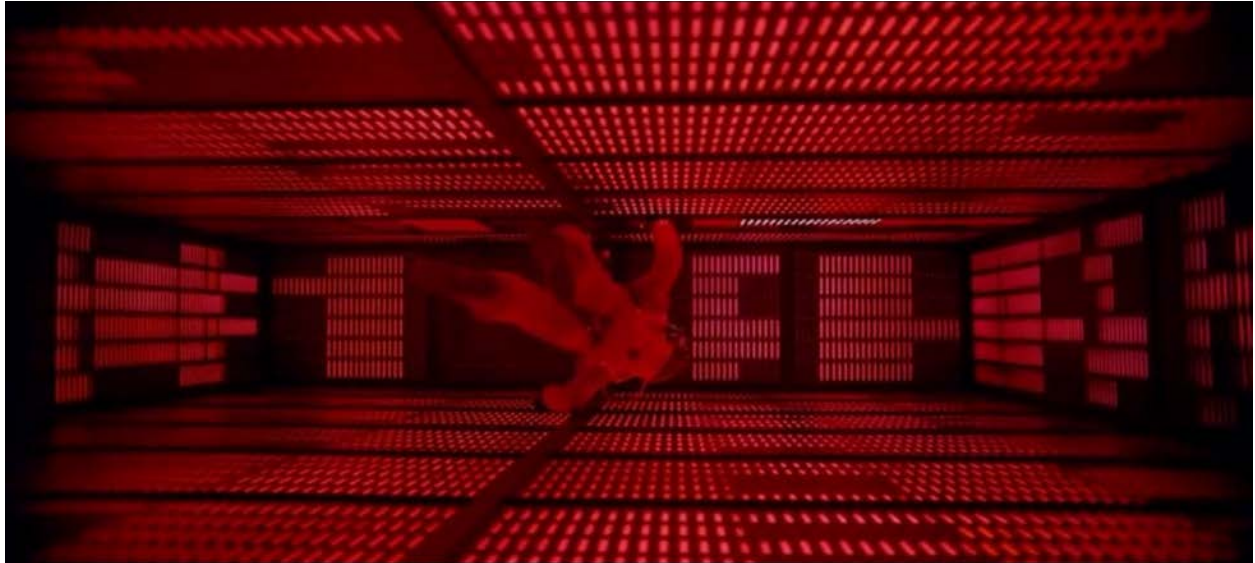
Fig. 14.1 Dave and Hal fight for their lives

Fig. 14.2 Travis Bickle questions the nature of his existence

Fig. 14.3 Arthur's stand-up is like life and death

The question arises, to what degree these associations are nature or nurture. To what degree they are only natural to human psychology or born out of cultural opinion on artificial light and where and how it occurs in our daily lives.

Conclusion

Lighting is a complex area entangling psychology, biology, physics, technology and architecture. Film lighting is informed by real-life and by film language; films balance realism and audience expectation.

As a mostly formalist subgenre, urban dystopia aims to evoke strong emotions through lighting and colour. While urban dystopia can seem like fantastical escapism, it tends to resonate by drawing attention to society's issues and uses urban lighting to support the film's ideas.

Regularly, urban dystopia uses society's trend towards **soft light** as parallel to society's development towards 'neutralization and inactivation' as soft light can expose a character's sadness, anxiety and inner emptiness.

Neon lamps appear beautiful, very artificial and as a symbol for advertising. Some films use neon to bring out an artificial beauty, but urban dystopia often links neon light with a visually cluttered world, an 'attention economy' or with 'mass deception'. Screens and holograms can serve as further tools to symbolise these ideas.

Street lamps are both romanticised and despised in different scenarios. **Low-Pressure Sodium Vapour** has a heightened look that can support existential feelings.

The most 'natural' lamp is **incandescent**, which urban dystopia uses to contrast by being romantically orange (and criticising technological development) or by being white and representing meaningless normality that doesn't evoke strong emotions.

Fire is antithetical to artificial light and thereby to technology, it is usually present in technology critical urban dystopia as a symbol of a nostalgic past.

The **absence of daylight** can support a character's emptiness through the soft light; the absence of the sun's activating effect creates the absence of liveliness.

Finally, urban dystopia uses lighting to support its themes by using cultural and psychological phenomena to create emotionally convincing pictures. Clever urban dystopian cinema knows which lighting is best to evoke any given emotion by drawing on the complex nature of lighting and film lighting.

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Appendix

A1: Study Process and Results

A1.1 Goal

The goal of the study was to find a correlation between emotional response and lighting and to make conclusions about which lighting styles commonly have which reaction.

The plan was to shoot a series of photographs matching in expression and framing with only the lighting style changing.

A1.2 Methodology

The two expressions chosen for these photographs were

   A) Looking into the distance
   B) Looking at the ground

Both expressions were matched with a neutral mimic to not evoke emotion through facial cues, instead, the meaning was supposed to be informed by the lighting (similar to how editing did in the Kuleshov experiment). It is to be mentioned that because of time and playback limitations, matching the expressions had to be done by memory and especially one case (4B) was significantly different from 1B, 2B and 3B.

The photographs were taken under five different lighting conditions

1: High Key Lighting

This setup was used to measure the effect of conventionally pleasing lighting and to have contrasting 'neutral' data towards the more dramatic setups.

Reference Image 1a (American Hustle, 2013)

Reference Image 1b (Joker, 2019)

Lighting Plan

Dedolight DLH-4 above frame

Dedolight DLH-4

Subject

4x4 Polystyrene board

216 Diffusion Gel on 4x4 Frame

2kW Tungsten Fresnel
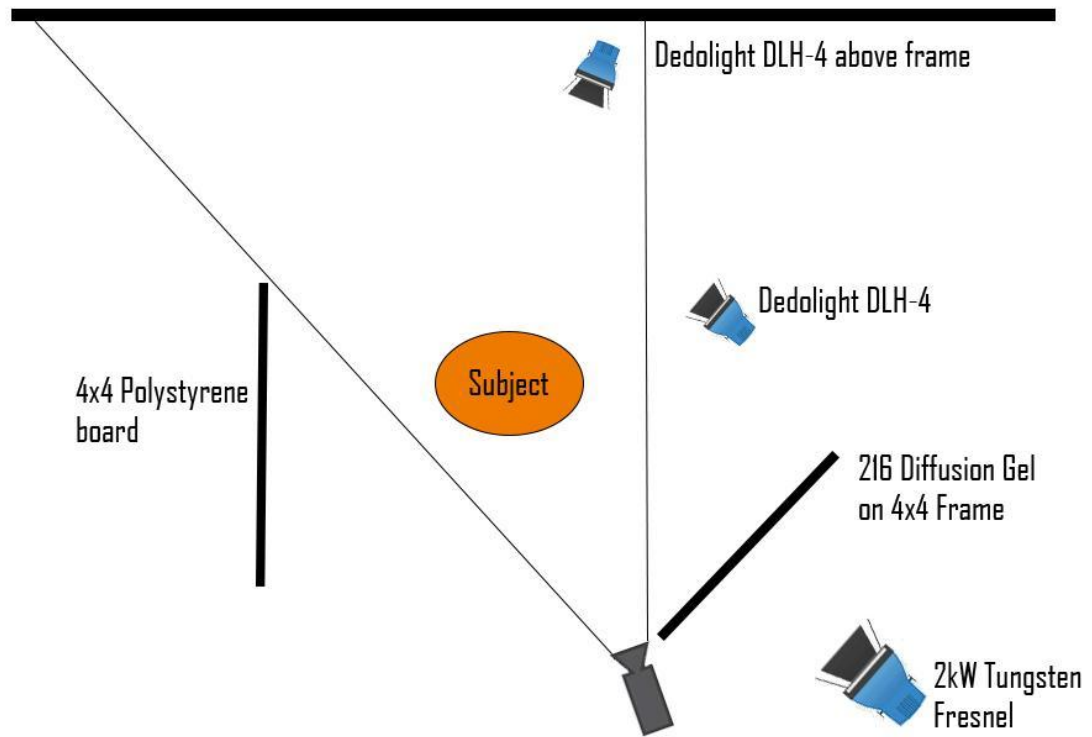
Survey Image 1A

Survey Image 1B

2: Cool-White Soft Top Light

This lighting approximates both the fluorescent and white panel look and was achieved with a Kino Flo fixture right in front of the subject similar to Fight Club.

Reference Image 2a (Blade Runner 2049, 2017)

Reference Image 2b (Joker, 2019)

Lighting Plan

2900K or 3200K

Polystyrene boards on standby to simulate ambient bounce for below and sides

KINO

KinoFlo Freestyle

Subject

Flag

KINO

KinoFlo Freestyle
High angle pointing straight down
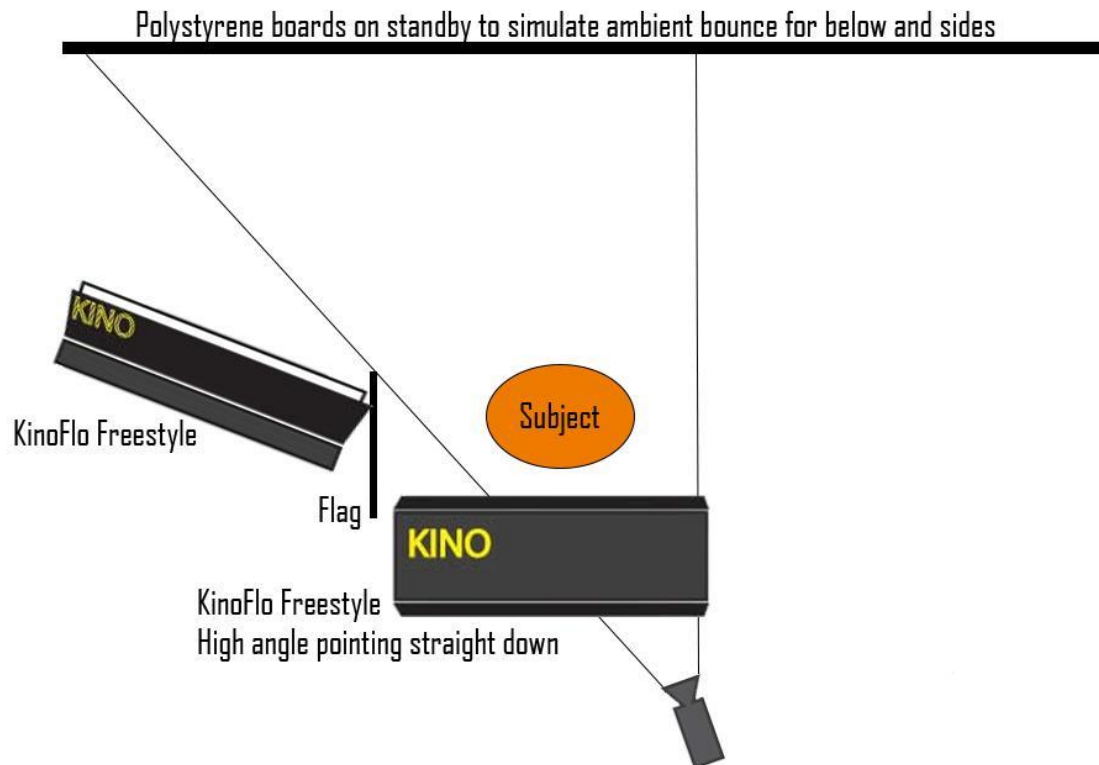
Survey Image 2A

Survey Image 2B

3: High Contrast Saturated Red

This light occurred in some of the case-study films and therefore it seemed interesting to see the response to this dramatic look. It has since disappeared from the main text as it isn't a typical urban light.

Reference Image 3a (2001: A Space Odyssey, 1968)

Reference Image 3b (Taxi Driver, 1976)

Lighting Plan

3200K

KinoFlo Freestyle
at 255, 000, 000

Flag

Subject

4x4 Flag

2kW Tungsten Fresnel
with Primary Red Gel
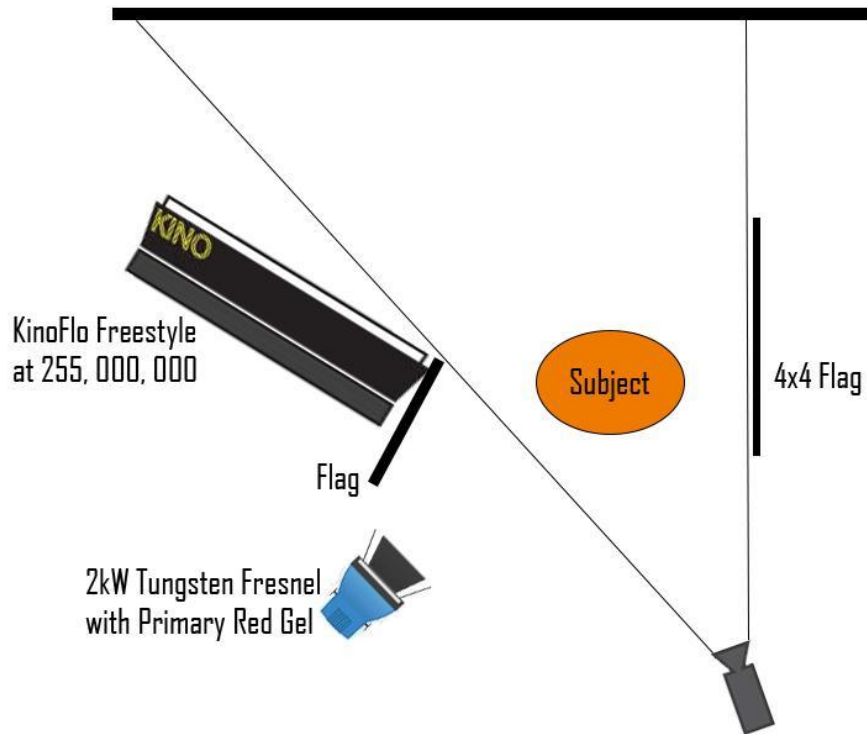
Survey Image 3A

Survey Image 3B

4: Hard Sodium Vapour

Sodium Vapour street lamps have an extreme look which's psychological effect I couldn't place yet and was looking for data to bring out results.

Reference Image 4a (Victoria, 2015)

Reference Image 4b (Joker, 2019)

Lighting Plan

WB 5600,
Oklahoma Yellow
Deep Amber

Dedolight DLH-4 avove frame

KINO

KinoFlo Freestyle
matching Tungstens

Subject

4x4 Flag

Flag

2kW Tungsten Fresnel
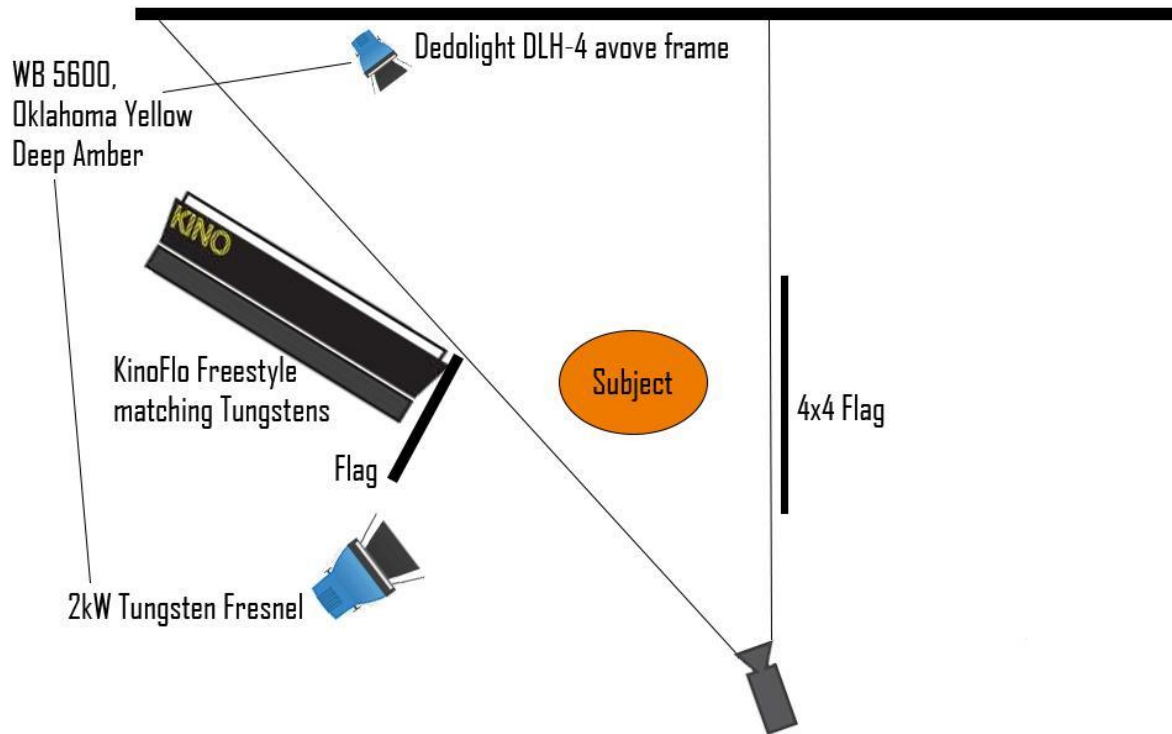
The descriptions on the left describe ways of achieving the look, the final shots were achieved without gels and shot at 5600K with an added green tint in editing.

Survey Image 4A

Survey Image 4B

5: Soft Neon Lamps in Haze (unused)

Neon lamps are an obvious candidate for urban lighting and it seemed interesting how audiences react to the saturated colours in the haze of the city.

Setup 5 was excluded from the survey as the result did not seem to evoke an association with neon lamps and due to fire safety regulations, haze was not allowed in the studio.

A1.3 Survey

The survey started with the title "Charting Emotional Response" and the following preface, the relation to lighting was purposefully omitted :

Please rate your intuitive emotional response to the image or towards the person in the image. I ask you to act on your instinctual response and give a neutral rating if no response naturally presents itself.

The order of the questions was randomised for each participant to balance out the effect of seeing a certain image first. The participants were presented with all questions which were formatted with the images 1A, 1B, 2A, 2B, 3A, 3B, 4A and 4B from above and were asked the following three questions with a scale from 1 to 7.

Q1: *Happy or Sad?*
With 1 labelled 'Sad' and 7 labelled 'Happy'.
Q2: *Anxious or Peaceful?*
With 1 labelled 'Anxious' and 7 labelled 'Peaceful'.
Q3: *Empty or Joyful?*
With 1 labelled 'Empty' and 7 labelled 'Joyful'.

The survey was hosted on Google Forms and sourced participants from Reddit (subforum 'SampleSize') and SurveySwap. SurveySwap can lead to participants quickly clicking through as there is a reward for users in doing so.

A1.4 Results and Evaluation

The survey concluded with 44 participants (7 from Reddit, 37 from SurveySwap). It is reasonable to assume that most SurveySwap participants answered actively, not just to get points (though this likely happened at least once).

The results however do overall demonstrate an active consideration from the participants; a random result would show less difference between results and a higher standard deviation.

Of course, a higher participant count and a more uniform photographing method would have been necessary to make these results good scientific practice. They are in the end to be seen as an indication, a tendency, rather than as proof.

The median value describes the average result on the scale of 1-7, thereby giving an overall impression on how Sad, Anxious and Empty or Happy, Peaceful and Joyful the pictures A and B were perceived.

Median	1A: Happy or Sad?	1A: Anxious or Peaceful?	1A: Empty or Joyful?	1B: Happy or Sad?	1B: Anxious or Peaceful?	1B: Empty or Joyful?
Setup 1	3.444	3.911	3.11	4.356	4.178	2.911
Setup 2	3.089	2.622	3.289	1.978	2.978	2.333
Setup 3	2.867	3.556	2.578	2.467	3.222	2.333
Setup 4	2.911	3.133	3.244	2.133	3.022	2.378

Table 1: Median values compared

The standard deviation explains how decisive the results were (whether most values were close or far apart), which can lead to understanding how powerful the lighting type was in guiding the participants to a certain value. The lower the value the more universal is the answer and the more meaningful is the median value.

Standard Deviation	1A: Happy or Sad?	1A: Anxious or Peaceful?	1A: Empty or Joyful?	1B: Happy or Sad?	1B: Anxious or Peaceful?	1B: Empty or Joyful?
Setup 1	1.320	1.51	1.435	1.577	1.648	1.1908
Setup 2	1.219	1.235	1.366	0.902	1.329	1.205
Setup 3	1.265	1.432	1.331	1.191	1.593	1.061
Setup 4	1.267	1.72	1.253	0.971	1.491	1.208

Table 2: Standard Deviation values compared

The **high key lighting** was perceived the most positively, but also with the highest standard deviation meaning that this lighting was perceived overall as the happiest, peaceful and joyful, but the values are still very neutral, indicating that this lighting doesn't evoke strong emotion, but is rather perceived as more neutral. The dips in "Empty or Joyful?" are likely due to a combination of the expressions being generally not perceived as very joyful. It's worth noting that 1B, the more thoughtful looking

expression, has evoked higher values than 1A. Potentially, this lighting makes people think that the thoughts must be happy and peaceful ones.

The **cool-white soft top light** was overall more associated with sadness, anxiety and emptiness than the high key lighting. This lighting scored significantly high on anxiety compared to the other lighting styles. It's interesting that while the high key lighting was perceived as more happy and peaceful when in a thoughtful expression, the soft top light was perceived as very sad and empty. This lighting setup also has the lowest standard deviations which suggest that the emotional reaction is rather universal. The head in 2B and 4B was tilted down more than 1B and 3B which likely contributed to the dips in sadness.

The **high contrast saturated red** images were slightly blurry and by nature of this extreme look there is little emotion to be read from the face, nonetheless, the results show clear directions with low standard deviation values except for question 2. Question 2, "Anxious or Peaceful?" has a median value approaching 4 and high standard deviations which shows that it seemed like the image didn't give much information on this emotional response. Using red light without context seems ineffective to evoke anxiety or peacefulness. Patti Bellantoni speaks about there being both angry and lusty reds, but judging from the values this particular red lighting will evoke more negative emotion, especially emptiness.

Hard Sodium Vapour light was very similar to the cool-white soft top light; associated more with sadness, anxiety and emptiness than high key lighting. Values between the two styles as well as standard deviations are quite similar, however standard deviation on "Anxious or Peaceful?" is higher than the red but with a lower median which means it might still be slightly more effective at suggesting anxiety as values closer to 4 will have lower standard deviations caused by a natural spike in neutral values.
Possibly due to the head tilting down the same spike in sadness present in the soft light shows up.

A1.5 Data

Table 3: High Key Lighting						
Setup 1	1A: Happy or Sad?	1A: Anxious or Peaceful?	1A: Empty or Joyful?	1B: Happy or Sad?	1B: Anxious or Peaceful?	1B: Empty or Joyful?
Median	3.444	3.911	3.11	4.356	4.178	2.911
Standard Deviation	1.320	1.51	1.435	1.577	1.648	1.1908
Total of 1s	4	3	5	1	4	4
Total of 2s	5	5	13	4	4	14
Total of 3s	11	7	7	7	4	10
Total of 4s	14	10	8	12	9	11
Total of 5s	9	14	10	7	11	5
Total of 6s	0	3	1	8	11	0
Total of 7s	1	2	0	5	1	0

Number of neutral answers (participants clicking 4): 64 out of 264

Setup 2	1A: Happy or Sad?	1A: Anxious or Peaceful?	1A: Empty or Joyful?	1B: Happy or Sad?	1B: Anxious or Peaceful?	1B: Empty or Joyful?
Table 4: Cool-White Soft Top Light						
Median	3.089	2.622	3.289	1.978	2.978	2.333
Standard Deviation	1.219	1.235	1.366	0.902	1.329	1.205
Total of 1s	5	9	4	13	4	11
Total of 2s	8	13	7	21	14	16
Total of 3s	12	7	14	6	10	9
Total of 4s	13	13	10	4	10	6
Total of 5s	6	2	7	0	5	1
Total of 6s	0	0	1	0	0	1
Total of 7s	0	0	1	0	1	0

Number of neutral answers (participants clicking 4): 56 out of 264

Setup 3	1A: Happy or Sad?	1A: Anxious or Peaceful?	1A: Empty or Joyful?	1B: Happy or Sad?	1B: Anxious or Peaceful?	1B: Empty or Joyful?
			Table 5: High Contrast Saturated Red			
Median	2.867	3.556	2.578	2.467	3.222	2.333
Standard Deviation	1.265	1.432	1.331	1.191	1.593	1.061
Total of 1s	7	5	11	9	7	8
Total of 2s	11	4	12	16	9	21
Total of 3s	8	8	7	9	7	6
Total of 4s	14	16	10	7	10	8
Total of 5s	4	8	4	3	8	1
Total of 6s	0	2	0	0	2	0
Total of 7s	0	1	0	0	1	0

Number of neutral answers (participants clicking 4): 65 out of 264

Setup 4	1A: Happy or Sad?	1A: Anxious or Peaceful?	1A: Empty or Joyful?	1B: Happy or Sad?	1B: Anxious or Peaceful?	1B: Empty or Joyful?
			Table 6: Hard Sodium Vapour			
Median	2.911	3.133	3.244	2.133	3.022	2.378
Standard Deviation	1.267	1.72	1.253	0.971	1.491	1.208
Total of 1s	5	10	3	11	9	11
Total of 2s	12	8	10	19	8	13
Total of 3s	13	5	10	10	7	14
Total of 4s	8	10	13	3	11	3
Total of 5s	5	7	7	1	8	2
Total of 6s	1	3	1	0	1	1
Total of 7s	0	1	0	0	0	0

Number of neutral answers (participants clicking 4): 48 out of 264

| Table 7: All collected values | | | | | | | | | | | | | | | | | | | | | | | |
| 1A | | | 1B | | | 2A | | | 2B | | | 3A | | | 3B | | | 4A | | | 4B | | |
Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3
3	1	1	5	6	3	3	4	3	3	7	4	5	7	5	5	7	4	2	1	4	2	3	3
1	2	2	2	5	4	1	2	2	2	2	1	2	3	2	2	5	1	1	2	2	1	2	2
3	4	5	4	4	3	4	3	3	3	2	2	4	3	2	4	3	2	3	4	3	3	5	3
4	3	4	4	4	4	4	3	4	4	4	3	4	3	4	3	4	2	3	3	3	3	3	2
3	6	3	5	6	2	5	2	4	3	3	2	2	3	2	2	6	2	2	2	2	2	6	2
5	3	5	4	6	2	3	4	3	2	2	2	2	2	2	2	2	2	2	1	2	2	5	3
2	5	2	4	6	3	2	1	3	3	3	2	2	3	2	2	3	3	4	1	2	1	1	3
3	3	5	3	5	4	2	4	3	2	4	1	4	3	3	2	2	2	4	2	4	1	2	3
5	4	5	5	6	5	4	4	5	4	4	6	4	5	3	4	5	4	4	4	3	3	3	5
1	4	1	4	3	1	1	1	3	1	1	1	1	1	1	1	1	1	3	1	3	1	1	1
4	4	4	4	5	3	3	2	2	2	4	2	2	3	3	2	3	2	2	1	2	2	2	2
4	4	1	7	6	2	1	1	3	1	5	1	1	4	1	1	3	1	2	3	4	1	4	1
4	6	5	3	5	3	5	4	5	2	3	3	2	5	4	2	5	3	3	3	2	2	2	3
4	5	1	7	4	4	4	4	4	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1
3	5	2	7	3	2	3	1	5	1	3	1	3	4	5	2	2	2	3	5	4	2	3	1
3	4	2	2	6	4	2	1	1	1	3	2	1	4	4	2	4	3	3	1	3	2	4	1
5	2	2	5	4	1	5	2	2	2	2	2	5	5	5	2	5	2	5	5	5	2	5	2
3	2	2	1	1	2	3	4	4	1	2	1	2	4	1	1	1	4	5	4	5	1	1	2
4	4	6	2	6	2	4	2	3	1	2	2	4	4	2	2	2	2	6	6	6	3	5	3
5	3	3	6	2	2	5	2	1	1	3	1	1	6	1	3	5	2	1	5	4	2	4	1
4	3	5	4	5	5	4	4	4	2	2	3	4	5	4	3	3	3	3	5	3	3	5	4
5	5	3	6	4	2	3	2	3	2	3	2	3	5	4	3	4	2	4	4	5	2	3	2
3	3	3	4	3	4	4	3	4	3	4	5	3	3	3	4	3	4	3	4	4	4	4	3

4	6	4	6	7	3	2	2	6	2	2	2	2	5	2	3	5	2	4	6	4	2	1	3
4	4	2	4	4	3	4	3	3	2	4	3	4	4	4	3	4	4	3	3	4	3	4	3
4	5	4	6	4	3	3	3	5	1	5	4	4	4	1	1	6	2	2	4	4	1	4	2
4	5	4	4	4	4	4	4	4	2	4	4	4	4	4	4	4	4	4	2	4	4	4	4
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5	1	2	6	6	2	3	1	3	2	3	4	5	1	2	5	3	2	5	4	4	2	1	3
5	7	4	5	6	5	4	5	7	1	2	2	3	6	2	4	5	2	2	7	5	3	2	3
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7	7	2	3	5	4	1	1	1	1	4	2	1	2	1	2	2	1	4	4	4	3	4	6
4	5	5	4	5	4	3	2	4	1	2	3	4	5	4	2	2	2	1	1	3	2	1	1
3	5	3	4	6	3	4	3	5	2	5	3	4	4	4	4	4	4	3	3	5	3	4	3

A2: Terminology

A2.1 Urban

describes an area or things associated with an area that houses many people. Usually, the term means places where lots of people live close together. The official definition of urban in the U.S. is a place with over 2500 residents, whereas Peru considers dwellings with over 100 people as urban, but urban is usually used for high-density areas.

Urban jungle is a term with usually negative connotation used for urban space with associations like traffic noise, pollution and tall concrete buildings.

Urban sprawl is the uncontrolled wide extension of a large city. Especially in the United States resulting in large low-density suburbs with single-use (residential) buildings, which make the city reliable on cars due to inaccessibility of retail, industrial and office areas.

Urbanism describes the migration from the countryside to cities and towns.

A2.2 Dystopia

Depending on the definition dystopia refers just to an imagined future or to the present as well. The term is a Greek neologism that strictly literally means 'bad place'. Seen as an antonym for utopia it becomes interesting, as utopia means 'no place' and eutopia means 'good place'. Our modern definition of utopia has become a merger of the two words. Films naturally present imagined worlds even if they're pretending to be the real world, so while dystopia often looks at future worlds, it can also fit a contemporary definition of 'imagined bad place'.

Dystopia looks at societies characterized by "human misery, as squalor, oppression, disease, and overcrowding (Dictionary.com, n.d.). Cambridge Dictionary's examples mention rapid industrialization leading to fears about "living in a dehumanized,

mechanized dystopia". Dystopian society is "a very bad or unfair society in which there is a lot of suffering, especially an imaginary society in the future, after something terrible has happened;" (Cambridge Dictionary, n.d.).

"Most alternate histories in English are dystopias, depicting a society that is strikingly worse as a result of the changed outcome." (Cambridge Dictionary, n.d.). Dictionary Britannica mentions a difficulty of utopian fiction being the lack of dramatic conflict and chances for improvement. Dystopia has the advantage of limitless dramatic conflict and the possibility for improvement.

A2.3 Theme

In screenwriting, the theme is not a topic or subject, but the author's belief in how to act in the world. A film is an exploration of the theme, going through different variations on the topics present in the theme and exploring different ways of living life, sometimes not arriving at a definite point.

Theme, therefore, becomes a defining power in a film and affects every aspect as every aspect is shaped (whether consciously or not) by one or more themes that explore the moral dilemma of an aspect of life. Themes are designed to evoke questions in an audience.

A2.4 Story World

Story world defines the world portrayed in a story, which includes the time period and reality the story is set in. Story world usually has implied boundaries that limit it to a country, city, borough or room. These sub-areas tell the story on their own just like characters can do. John Truby describes it as like an arena that the characters will "fight" in. Struggles and obstacles are influenced by that arena.

The story world is defined by the characters and the characters are defined by the story world.

Space is often the only way without going into the past where you can show true discovery in the story world, it is also where the identity of characters or other things can be revealed because they are surrounded by nothingness.

Desert and Ice are places of death, they are brutal but impersonal.

Weather has associations, the following can be used to portray or contrast.

Lightning and thunder: passion, terror, death
Rain: sadness, loneliness, boredom, cosiness
Wind: destruction, desolation
Fog: obfuscation, mystery
Sun: happiness, fun, freedom
Snow: Sleep, serenity, quiet unstoppable death

The **city** is often overwhelmingly big. Many stories minimise it to specific locations, but not doing this can convey the scale and how small and lost a character is. Vertical cities often portray class struggle. The city can be jungle-like: confusing, chaotic, with trouble around every corner.

Technology usually tells what the author thinks about the state of human evolution:
Is the technology benefiting or harming? Is it ambiguous? Is it a double-edged sword?

Technology and its place in society are interesting to look at:
Who wields power over it? Who uses it?

A2.5 Realism & Formalism and the relation to Dystopia

Realism is a fiction film style and movement aiming to portray reality as it is. Realism in its most extreme interpretation wants to refrain from using storytelling devices to manipulate an audience. Of course, there is no objective way of making a film, every person perceives differently visually and audibly and even then there would be a question of whether framing a film as a human observer is realistic or not.

Nonetheless, realism in its most extreme forms uses wide shots that cover all the action, without using lenses to distort space, without editing that conveys meaning and without using unrealistic lighting (among many other creative choices). Though again, an issue presents itself: what you choose to film is already a manipulative choice: *do you show a character skipping a queue because it's realistic for them to do? Or do you leave it out because the audience will perceive this as important and react unsympathetic to them?*

Conventionally, realism is not interested in formalist traditions that use the craft of filmmaking to convey meaning, opinion and emotion. An extreme view might be, that formalism is essentially propaganda and that realism is the more ethical form.

Formalism uses filmmaking techniques to evoke emotion and appeal to an audience.

A formalist might argue that an 'objective' view through a wide shot will lack the emotional truth of the character. In a realist film we could watch a character commit murder and not feel a thing because we are not being engaged in the action through the filmmaking, thereby the action not being criticised by the filmmaker.

Formalists might also point out that branding a film as 'realist' can be more dangerous as an audience will accept what's presented as the truth, instead of make-believe.

Fundamentally the debate between formalism and realism is about whether an audience should be evoked to make up their mind about the world or whether they are not capable of doing so and have to be guided.

Author Christopher Brown says "**Dystopia** is realism, at least when it is done well. It depicts the world as it really is, through the refractive prism of extreme metaphor." (Brown, 2017). While Brown refers to a general definition of realism, what he says defines dystopia as formalism. Dystopia to him defines itself by attempting to express aspects of reality through metaphor.

"Dystopian novels often purport to be—or are assumed to be—set in the future, to suspend disbelief in their fantastical elements. But the reason books like *1984* and *The Handmaid's Tale* get called "prescient" is not because their authors were practicing predictive futurism, but because they reported accurately on the character of the contemporary world they saw." (Brown, 2017)

Dystopian cinema presents issues often with a strong focus on them to bring awareness to them or to give audiences comfort in seeing the issues talked about, even if they don't consciously know that that's why they resonate with those films.

"The greatest potential of dystopian realism—a speculative fiction that reports ugly truths about the human society we live in—is to discover its real alternatives." (Brown, 2017)

There are films that some would define as dystopian that present parts of reality that some would consider dystopian. A film can follow realist traditions and still be perceived as dystopian by viewers that see the presented reality as dystopian.

A2.6 Existentialism

Existentialism is mostly associated with an atheist worldview as it was born out of the lack of direction arising from atheism. Existentialists answer the lack of values and meaning in life arising from atheism with the idea that each person has to create their own values and meaning in life, because to them, humans don't have an inherent identity or value.

Existentialists believe that humans are not born with these, that we are naturally free to choose our identity and aspirations and that actually we are forced to choose them.

"[Kierkegaard]proposed that each individual—not society or religion—is solely responsible for giving meaning to life and living it passionately and sincerely, or "authentically"." (Wikipedia, n.d, F)

"man first of all exists, encounters himself, surges up in the world – and defines himself afterwards" (Sartre, 1945)

A central mantra of existentialism is **"Existence precedes essence"**. (Sartre, 1945)

Existence are independently acting and responsible, conscious beings

Essence is labels, roles, stereotypes, definitions, or other preconceived categories the individuals fit

Existentialism thereby says at its core to be truthful to your own being before fitting into society; a person is firstly an individual then secondly exists within a society.

The individual has to define their own essence which is more important than the essence that society attributes to them.

Existentialism acknowledges the connection to factuality; facticity describes how naturally our past shapes us and that we are limited by our abilities. Full disconnection from one's past is untrue, yet full definition through one's past self or past actions is also untrue.

Existential angst or **existential dread** is the feeling that comes when one is confronted with the reality of having freedom to make decisions that the outcome may be clear of. Knowing that one has the freedom to make bad decisions unknowingly.

Existentialists believe that objective science or social moral norms are unsuitable means for fully understanding human beings.

"all the themes popularly associated with existentialism—dread, boredom, alienation, the absurd, freedom, commitment, nothingness, and so on—find their philosophical significance in the context of the search for a new categorial framework, together with its governing norm." (Crowell, 2004)

At the center of existentialism is "existential angst [...], or a sense of disorientation, confusion or anxiety in the face of an apparently meaningless or absurd world." (Wikipedia, n.d, F)

Alienation is the feeling that arises when one doesn't feel like they have an identity, when they feel like their actions don't make sense in context of who they are because they don't know who they are.

This is because defining oneself usually happens by thinking about oneself in the third person, which only works through the lens of others, yet when there are no others who would know or understand you then this approach fails.

"My very engagement in the world alienates me from my authentic possibility." (Crowell, 2004)

Self-definition happens in the context of the norm, but the norm often alienates. And even combatting the norm only aligns one with the side of the protesters (another norm) and isn't actually a unique identity.

Rejecting all forms of the norm can lead towards a trap in which acting "morally" (with the norm) can be inauthentic to one's true identity, but not acting morally will alienate one from society, which gives definition of identity and sense of self.

"A person suffers from alienation in the form of 'powerlessness' when she is conscious of the gap between what she would like to do and what she feels capable of doing". (Fishman, 1996)

Existentialists claim that acting true to yourself is the only way to escape alienation because acting as one chooses, not acting as one's supposed to act, shows that one is capable of defining themself.

The idea of alienation stems from Marx who defined it as a worker's condition in capitalist society: the ruling class defines the worker's life and takes away their true self, which then leads them to be disconnected from who they feel they are ideologically and who they are, defined by their actions.

A2.7 Retrofuturism

Retrofuturism imitates futurism of the past. It draws in audiences through nostalgia and a form of futurism that now seems naive or outdated. It often is escapist in nature, as its connection to a world in the past with different issues and worldviews to today's naturally has or appears to have less relation to present issues in society.

A2.8 Artificial Light

Artificial light is any light created by the intervention of humans. It is however questionable where to draw that line with light sources like fire, especially if it is wielded as a torch or candle.

Is fire light artificial when it's created by humans?

Some people may also informally call incandescent light natural because it's a simple "natural-appearing" light created by heating a wire.

For the purpose of this report, the term 'artificial' is used for all electrical lights and the question of fire light is discussed in the 'Fire' section.

A2.9 Turning Point in Lighting for Colour Film

Cinematographer Haskell Wexler reports how at the emergence of colour film everyone used to advise to match all lighting sources to white light and use lighting ratios of maximum 2:1 or 3:1 as the film would not look decent if not done so, however he continued to light like in black and white and said that it was never remarked upon (Schaefer et al., 2013). The trend to match all lighting sources would continue, especially faces would be lit almost exclusively with white light for years to come.

A2.10 What is 'futuristic blue'?

Why is there such a thing as 'futuristic blue'? Quora user Tim Rivett has an interesting hypothesis linking to human binary thinking, linking the fact that search results of old things often come back with warm colours and futuristic things with cold colours (Rivett, 2020). Thereby linking positive experiences like nostalgia and warmth with warm colours and the antithesis or absence of them as cold.

This collective truth of perception may stem from earth coloured elements and warm firelight being more common in history, but this collective truth doesn't hold up anymore. Nostalgic scenes in films have warm colours even if flashing back to a time where there is no reason to have warm colours.

Bellantoni believes that reacting to earthly colours is a natural human trait (Bellantoni, 2005, p.113). Warm colours can elicit a subconscious feeling of nostalgia, which may explain '2001's use of cold and neutral colours; nothing in this film was meant to feel nostalgic or earthly except for the prologue.

A3: Quotes

Q.1 "[Blade Runner is a] tongue-in-cheek idea of what could actually happen if the replicant industry becomes a large conglomerate, a monopoly."

- Ridley Scott (Lightman, 1982, B)

Q.2 "[Blade Runner is] not a warning in any sense of the word"

- Ridley Scott (Lightman, 1982, B)

Q.3 "We understand the rage of a man who is powerless over his destiny. Pale blue is the quintessential color for powerlessness."

- Patti Bellantoni on Blade Runner's 'Tears in Rain' Sequence (Bellantoni, 2005, p.146)

Q.4 "And then, when he gets into his home, that's the first time we're introduced to some warm, comforting, tungsten light, it's lamps, it's warm, it's inviting, and it's probably the warmest, most gentle light that's in the whole movie."

- Lawrence Sher on Joker (Sher, 2019)

Q.5 "Yellow is the color longest remembered and most despised."

- Dr. Harry Hepner (Bellantoni, 2005, p42)

Q.6 "You can't make movies any more in which the whole country seems to make sense. After Vietnam, after Watergate, it's not just a temporary thing; it's a permanent thing the country's going through. All the things we held sacred - the whole Time-Life empire...whoosh! Well, Time's still left."

- Martin Scorsese (Ebert, 1976)

Q.7 "[Taxi Driver is] Feminist. Because it takes macho to its logical conclusion. The better man is the man who can kill you. This one shows that kind of thinking, shows the kinds of problems some men have, bouncing back and forth between the goddesses and whores. The whole movie is based, visually, on one shot where the guy is being turned down on the telephone by the girl, and the camera actually pans away from him. It's too painful to see that rejection."

- Martin Scorsese (Ebert, 1976)

Q.8 "And then I read that I'm a realist, a naturalist! Somebody compared the picture to "Shoeshine!" Really! I'm not interested in a realistic look - not at all, not ever. Every film should look the way I feel."

- Martin Scorsese (Ebert, 1976)

Q.9 "I do think Taxi Driver is enormously a New York movie and that we got the way New York looks. [...] It isn't a terribly realistic movie, so maybe we didn't get the way New York looked, but we got some emotional equivalent [...] A lot of the unpleasantness of Taxi Driver is about a kind of paranoia you can get in New York and that you have if you have in New York if you live below a certain income level."

- Michael Chapman (Schaefer et al., 2013)

Q.10 "Blade Runner is a piece that calls for extremes. It's naturally a wonderful vehicle for this kind of lighting. It's theatrical, but it will be very real in the film."

- Jordan Cronenweth (Lightman, 1982, A)

Q.11 "The thing that was unique was not the equipment or the gels or the intensity or the hard or soft light. It was the concepts behind each situation telling the story. Since the film is set in the future, unusual sources of light could be used where one would not accept them in a contemporary setting."

- Jordan Cronenweth (Lightman, 1982, A)

Q.12 "The shafts of light represent invasion of privacy by a supervising force, a form of control. You are never sure who it is; but even in the darkened seclusion of your home, unless you pull your shades down, you are going to be disturbed at one time or another."

- Jordan Cronenweth (Lightman, 1982, A)

Q.13 "if the surroundings had a particular color of light, then we'd go with that and perhaps add to it. [...] However, this approach often called for working at very low levels, so to not overwhelm those existing sources."

- Jeff Cronenweth (Probst, 1999)

Q.14 "A lot of the movie's look was planned out early, in collaboration with the production designer, Alex McDowell. We chose to use heavily desaturated colors in all of the costuming, makeup and art direction, and also established that we were going to make as much use as possible of the available light — both natural and practical — that was at the locations."

- Jeff Cronenweth (Probst, 1999)

Q.15 "The general game plan was to make sure that the actors separated from their environment, and then play the actor's edgelight off of the practicals as much as possible without actually 'lighting' them. For this film, we didn't necessarily want to be able to see directly into their faces. It was more interesting and appropriate to the story to force the audience to pay attention. Faces were generally underexposed 1 and 1/2 to 2 stops, though it depended upon the scene. If the scene called for the audience to really be able to see them, I'd make the faces closer to 1 and 1/2 stops under. In either case, it was still important to feel the presence of their eyes, so we often played with eyelights — everything from Obie lights to Kino Flos taped to the matte-box — which we usually kept 3 stops under."

- Jeff Cronenweth (Probst, 1999)

Q.16 "We lit the faces mostly with Kino Flos covered with 1/4 CTO and muslin,"

<div align="right">- Claudio Miranda (Probst, 1999)</div>

Q.17 "We tried to stay away from the huge backlighting sources and the blue 'moonlight' look, most of our lights were kept pretty white. In San Pedro there are a lot of sodium-vapor lights that take on an orangey hue, so if we did occasionally use a backlight, we'd often balance it to the sodium vapors and play it as another street lamp. For the house exterior, I used an 8K tungsten balloon, which allowed us to get the light out of the way of the frame easily and get us a base exposure that was 2 or 2 1/2 stops under. We also surrounded the house with 20Ks and some of Claudio's DecaLights."

<div align="right">- Jeff Cronenweth (Probst, 1999)</div>

Q.18 "I think about it nonstop, lighting and color are part of the backbone of emotion."

<div align="right">- Danielle Feinberg (Feinberg, 2016)</div>

Q.19 "We had to do massive visual storytelling because there's no dialogue — only robot boops and beeps. Yet, we needed the audience to understand that we're on Earth, that it's polluted, and that WALL-E's the last one left. So we limited the palette to tans and oranges, our production designer was adamant that there be no green anywhere, because he wanted a visual punch when WALL-E finds a plant for the first time. Your eyes have been washed in a limited palette and suddenly there's intense green, it cerebrally makes a difference."

<div align="right">- Danielle Feinberg (Feinberg, 2016)</div>

Q.20 "There's a sense in American cinema: you want to portray an ideal world. You want to portray a utopia. That's good—dreams for a better world, to advocate for something better, yes. But if you look at my movies, they are exploring today's shadows. The first Blade Runner is the biggest dystopian statement of the last half century. I did the follow-up to that, so yes, it's a dystopian vision of today. Which magnifies all the faults. That's what I'll say about that."

<div align="right">- Denis Villeneuve (Jasper, 2017)</div>

Q.21 "I love Film Noir but I can honestly say that nothing directly influenced me on 'BR 2049'. Of course, that said, everyone is influenced by what they see and what they remember. The techniques that were used on the classic Noir films of the past were so different to the way we can light today that it is hard to make any comparison, in 'feel' yes but in terms of technique no. I do sometimes use direct light sources but I have that choice, whereas in the 1950s there was little option." (Deakins, 2020)

<div align="right">- Roger Deakins (Deakins R., 2020)</div>

Q.22 "Dennis Gassner designed a grey 'cold room' space for the Memory Vault, which called out for a different look to the rest of the Wallace interior. While I wanted to keep the idea of the lighting being motion sensitive, I felt this space should be lit with a cold light as opposed to something that felt more associated with sunlight."

<div align="right">- Roger Deakins (Deakins, D, n.d.)</div>

Q.23 "It was crucial to both Denis and I that we would shoot all the exteriors for 'BR 2049' under cloud [...] matching the grey overcast light, which Denis and I had determined we would shoot the exteriors under."

<div align="right">- Roger Deakins (Deakins, B, n.d.)</div>

Q.24 "[The ceiling at Bibi's Bar] were lit using matching fluorescent fixtures, which were also designed and built for the purpose. Inside these fixtures we used regular 4000K fluorescent tubes with some added green gel."

<div align="right">- Roger Deakins (Deakins, E, n.d.)</div>

A4: Short Analyses of Urban Dystopian Films

Fahrenheit 451 (1966)

Despite it being a dystopian sci-fi film it doesn't use lighting differently than contemporary films, with hard lights for men and soft lights for women, all of which are white-balanced to. Red practical lights are overpowered to not give any red light into the scene or onto the actors. The same with fire (in a film about burning books…). TVs are slightly blue but not by much. This is because early colour film stock was thought to have a low latitude and therefore low contrast was thought of as necessary. The US had lots of mercury vapour and sodium vapour street lighting and fluorescent interior lighting already but the film didn't reflect this.

THX 1138 (1971)

Mirrors '2001' and connects it directly to themes present in Metropolis or 1984. There's some use of coloured lighting (especially car headlights) and prevalent use of built-in soft practical lighting.

Solaris (1972)

Uses many soft built-in sources like '2001', yet the entire aesthetic is less clean and more mechanical. Due to top lighting, faces are barely lit in comparison to '2001'.

1984 (1984)

Roger Deakins's early cinematography had a slightly gritty but mostly conventional style of lighting that only started becoming bolder with films like Sid and Nancy. Nonetheless, within his early films this film stands out as being especially gritty and desaturated, Deakins stated wanting to shoot the film in Black & White, likely further reason for this.

1984 uses subtle blue light in the prison sequences. Flashback sequences to his short excursion into nature have warm evening light to portray emotional warmth out in the open. Deakins has mentioned that he found early cinematography to be uninspired as

everything was always supposed to be white balanced to and all sources matched to avoid any coloured lighting.

1984 does use desaturated white light for the city and natural light with more colours out in nature. It describes the way the film feels about natural light and urban light. There is no warmth in urban light, at least in this dystopian future.

Akira (1988)
Akira is a revolution in 2D animation lighting. The film uses dirty unwashed white signs with fluorescents (that often flicker), blinking traffic lights, many warm white fluorescents that are soft and warm but off colour, they render skin tones poorly.

There are many neon lights in general. The city glows in an overall green and blue in far exteriors. Most of the city never sees daylight and is therefore covered in soft dark light with some spots of sunlight sometimes coming through harshly.

The film switches to more conventional pleasant lighting after the final explosion when the city has been destroyed and nature has a place again.
There's a lot of strange blue lighting, especially to make the children appear ghostly.

Chungking Express (1994) & **Fallen Angels** (1995)
Chungking Express infuses its urban setting with dirty colours. Uncorrected fluorescents shine strongly green or blue. Even in exteriors at day, the light is always a soft cold blue. There is barely any hard light. Everything is desaturated, except the greens and blues. Fallen Angels follows the same style but has even more saturated greens and blues and some desaturated cosmetic roses.

The Matrix (1999)

While the Matrix overall is a white and slightly blue film, the scenes in the Matrix often have a green hue to them due to fluorescents and the film is remembered for this bold green wash.

The Dark Knight (2008)

Conventional blue light at night, normal light at day. Cold and warm fluorescents in the underground and sodium vapour in the streets.

Never Let Me Go (2010)

Mostly motivated through natural light, it's a dystopia but it's not about technology in any way. Artificial light sources aren't given much value, they aren't standing out from the natural light. An exception is the hospital scene in which a soft strong white light lights the scene, but it only stands out from the rest of the film due to top lighting.

Nightcrawler (2014)

The film, taking place mostly at night is full of urban light sources: screens, fluorescents, sodium vapour, car headlights and some white streetlights.

Mad Max (1979): All scenes have white and neutral light (even desert scenes)
Mad Max 2 (1981): Follows Mad Max's style, but with washed-out post-processing
Mad Max Thunderdome (1985): Regular slightly orange-tinted light
Mad Max Fury Road (2015): Fire-light, harsh saturated orange sunlight. There are hints of deep blue to contrast at night.

The Mad Max series shows the growing boldness during the 80s through the first three films. The 2015 installment shows the saturated lighting that's become more established in dystopian cinema since.

Victoria (2015)

There is a 'realistic' transition of light from night to day (white balance is unchanged throughout the film and practical lights were used).

Sodium vapour at night and as highlights during morning twilight.

Gaffer Mirko Fricke describes the film as 'Dogme-like', almost all lighting is practical.

Black Mirror: S1E2 Fifteen Million Merits (2011)

LED top lighting through practicals and practical lighting from screens, the sets consist in large parts of screens

Black Mirror: S3E1 Nosedive (2016)

criticises social media and the beauty mania of life within it, highlighting the alienation arising from social media culture. The episode plays on the irony of using cosmetic lighting: peachy and rosy tones in soft lighting that brings out conventional beauty in a face.

As the main character decays, normal street lighting, daylight and other non-cosmetic lights light her.

Finally, the climax is set on a pleasant normal sunny day, finding the middle ground between the extremes.

The prison at the end is very similar to the lighting of Solaris or Blade Runner 2049 with white practical top lighting on grey concrete.

Good Time (2017)

The lighting is all over the place. Often motivated nonetheless. Fluorescents and Theme parks rule the colours, but also other saturated colours in unconventional spaces.

Ghost in the Shell (2017)

Scarlett Johannson is rarely not in 'beauty light' but the film uses warm fluorescents, built-in white (and other coloured) strips for lighting the space. There are some cold blue scenes like in the lab in Blade Runner and some cyan lights like the fluorescents in

Blade Runner. Daylight is barely visible and when it is it's hard and harsh. There's some sodium vapour coloured streets motivated by long LED strips above the street.

Fahrenheit 451 (2018)

Takes much influence from contemporary sci-fi but lighting isn't often linked to real light sources and instead placed for visual spectacle. The film uses the modern cyberpunk look mirrored in Blade Runner 2049 that is distanced from retrofuturism.

Alita: Battle Angel (2019)

Soft orange daylight in the city at day.

The 'world above' is very technologically advanced and lit white and blue

The film uses lots of light strips and some fluorescents (though not used on faces).

Nights are dark and have rich blacks, illumination is minimalistic and often white.

Reflective Analysis: The Tale of Final Project

Act I

Once upon a time there was a peasant named Leon tasked to produce a written piece of knowledge to the King to prove his worth and get his approval to wed the Princess. Fascinated with urbanism in film lighting he gathered his thoughts and started mind-mapping.

Leon met with his mentor for a first time, who guided him to focus on Film instead of the breadth of TV & Film, but to follow his heart and include all urban dystopia, not just Sci-Fi.

Leon had finished his proposal. His mentor sent a letter warning him of the vast scope of theoretical frameworks, but proposed another: existentialism.

Once Leon had finished his proposal he was hesitant to go on his adventure. He rested as didn't feel ready, he instead planned when, where and how this journey was to go.

He met with his mentor for a second time who advised him to define the pivotal terminology.

He, structured as ever, planned to do his project in steps.

Plan from 04/12/20 (amended in early January)

Secondary Research -> Primary Research -> Conclusion & Shoot Plan -> Shoot -> Writing & Survey -> Review & Final Touches

W11 (07/12/20)	Realism/Formalism, Colour Theory
W12 (14/12/20)	Genre Theory, Technology, Lighting & Camera History, Existentialism
Holiday 21/12/20	Holiday
Holiday 28/12/20	Plan methods, days and films, Defining Key Words
W13 (04/01/21)	Analysing Films
W14 (11/01/21)	Finish and draw conclusions
W15 (18/01/21)	Research: Hue-heat effect, Existentialism
W16 (25/01/21)	Research: Reports on lighting, contact Gaffers for insight
W17 (01/02/21)	Research: Semiotics (Lighting & Mood)
W18 (08/02/21)	Find out how research links together
W19 (15/02/21)	Draw early conclusions
W20 (22/02/21)	Plan shoot
W21 (01/03/21)	Shoot
W22 (08/03/21)	Grading and preparing survey
W23 (15/03/21)	Write
W24 (22/03/21)	Write
Holiday 29/03/21	Start reviewing
Holiday 05/04/21	Review & add final touches
W25 (12/04/21)	Buffer
W26 (19/04/21)	Submission

Making the plan, Leon knew this journey would be long and he would have to start now to not have to rush to his destination. Overcoming his tendency to procrastinate by overplaning and he finally ventured out on his journey.

Act II

The journey was going well, Leon started to build piles of research. He found new areas and the piles grew, after a month and a half he had written up his planned research.

With the world banished into their chambers once more he was unable to create the images for his audience experiment, so he continued his primary research and changed plans. He watched through films and took pictures with annotations. To enrich this he took notes from interviews with the filmmakers.

After finishing his research, he looked at the two piles he created. The pile of case study films and the pile of research were free standing without connections. Leon had doubts whether these piles would find together.

Following his plan, he had nine weeks left, with the audience experiment still ahead of him. Research was completed, but analysis hadn't started. Annotating film stills without thorough analysis had left him with an unsolvable puzzle that he was too distracted to see.

He had come far and could no longer go back. Now he had to get started soon, meanwhile fearing that his writing would become a meandering path without destination. He started mind-mapping to create links between the piles, hoping to draw conclusions.

With the mind-map leaving him inconclusive, he decided to force his way, hoping that writing would bring answers. He gathered the connections he had found and manufactured a structure for his work that would include the researched topics.

Reconvening with his mentor for a third time, his mentor mentioned a scripture, '24/7' by Jonathan Crary, which may help creating links.

Denying the trouble he was in, Leon acquired the book and read it. In the meantime making plans for the audience experiment.

On the fourth meeting with his mentor, Leon had finally grasped his main problem: having research without analysis. He developed an 11-step structure as a tool for analysing each film on the topics he already researched.

Structure
1) Introduce Film
2) Filmmaker's position on realism/formalism
3) Filmmaker's position on the world and thereby dystopia
4) Historical context of the film
5) Relation to Genre conventions
6) Lighting effect: describe qualities of light
7) Lighting effect: colour theory
8) Lighting effect: lighting conventions
9) Relation to film's themes
10) Film vs real source
11) Resulting conclusion about the real source

He started writing a sample analysis. He was confident he had now cracked the problem.

Suddenly he was called back to the field. This change and the ongoing struggle to piece things together meant he was in crisis. For too long now he had held on to a schedule that was no longer adequate.

Act III

The audience experiment went smoothly. He spent a long time hoping for enlightenment through Crary's words, to his surprise they helped him out of his crisis by making the zeitgeist reflected in the films accessible.

Now Leon struggled with time. The King wanted his work in a month's time, with Leon knowing he would be working on the fields as well. He made a new plan.

Panic Schedule from 19/03/21

W23 (15/03/21)	Outline Document & Start writing
W24 (22/03/21)	Write (3 days)
Holiday 29/03/21	Conclude Survey & Write (3 days), write Reflective Analysis (1 day)
Holiday 05/04/21	ON A FILM SHOOT
W25 (12/04/21)	Review & add final touches (3 days)
W26 (19/04/21)	ON A FILM SHOOT (3 days) Reflective Analysis (1 day) & Submission

Meeting his mentor for the fifth time, the mentor offered reassurance and corrections to the beginning of Leon's writing. In a race against time, Leon wrote intensely day by day morning to night and got to first draft on April Fools Day. Leon asked a fellow journeywoman to proof-read, she made him find areas for review. Finally, he finished writing and said:

> *Would I do it differently? Of course! A plan was crucial for my journey, but I would review it regularly. I need to practice being flexible in my approach more often, because not everything works as an assembly line.*

Life is full of relationships so I want to acknowledge this, because not doing so can create problems.

I have a tendency to push hard things to later, but it always leads to my downfall when only hard things are left at the end.

I believe my crisis response was successful, but these crises were all born out of being conflict avoidant, pretending issues don't exist. In the future I want to listen to the early warning signs more often.

Leon's journey taught him about his future working practices and gave him knowledge about lighting types and light sources, especially as to Leon thematic reason, the 'why?' behind a visual choice, is paramount. He now has specialist knowledge about urban lighting and what effect it has on an audience.

Leon initially wanted to focus on the humanistic and cultural aspects, it slowly emerged that he really wanted to write about the psychological, technical, story-focused and emotional context.

He found his early hypothesis to be true, but now has an understanding of the how and why.

Whether the King will approve of him or not, what really mattered to Leon was the confidence, learning and knowledge he got along the way. Whatever outcome, now he would live happily ever after...

Change relating to Learning Outcomes

LO1: The report is an extended piece of knowledge in the lighting field which developed from being an interpretative essay to a more technical report.

LO2: I aimed to draw more on lighting principals and use frameworks with minor presence like narrative theory, colour theory, semiotics, psychology and biology. They have all grown in importance in the work and I have extensively grown my understanding of these.

LO3: Most key texts were ASC magazine articles, books and reports with other internet sources mostly for specifics. I relied more on secondary research than my own analysis.

LO4: I am satisfied with my result. The project changed direction slightly. I've reacted to feedback that informed my process. Frameworks changed in importance. I expected to find movements, instead of movements I found styles.