

REHEARSALS ON FACIALITY DIAGRAMS OF AI AVATARS

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in memoriam Hans Belting

REHEARSAL 1: ON AI AVATARS FACIALITY

Let us think facial diagrams in dramaturgies of thought that plays with methods of rehearsal of theoretical scenes² and practical actions. In Avatar and AI studies, diagrams of the Face have been used to design and analyze the facial features and expressions of digital avatars and AI agents. For example, by using the baby schema in the design of digital avatars and robots their perceived human-like qualities and likability is shown to have increased. However, as using such diagrams in the design of AI agents raises ethical concerns about the drama of manipulating human emotions and behaviors and potentially misusing such technologies, we should look into the dramaturgies of how schemata of the Face are proposed and used in new technological fields. While strategically making a move towards the tradition of Kantian and post-Kantian accounts of Schema such as the Peircean diagram, we rehearse scenes in variations in which diagrams of the Face are used to understand and analyze facial expressions and behaviors on the stage of ethology, social psychology, and avatar and AI studies. In a recent technical dramaturgy development of *Virtual humans*,³ we can distinguish Avatars and AI Avatars or digital humans⁴ with different degrees of movement and expressive autonomy. Synthetic Avatar faces make part of the social dream of the ubiquitous AI intelligent avatar dream of (semi)autonomous agential systems that act as if being economic, social, political, and religious agents alias Meta-Humans⁵ on *Meta-platforms: Avatars* proposed by *AI Foundation* (2022) or AI video creation platforms for creating AI Avatars, *Synthesia* (2022) or *Qinetiq*⁶(2022)- gain importance propelled by a growing digital cultural industry and economy and Avatar services.

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One significant impact Avatars have their potential to enhance the realism and expressiveness of virtual representations of ourselves. Slater et al. (2020) discuss the ethical considerations of realism and hyper- or superrealism⁷ in VR and augmented reality (AR) environments. They consider the role of avatars in creating an artificial or VR, AR, XR, and computer-mediated algorithmic sense of realism and how this can impact the user's experience and perception in these worlds or environments. Sensory input and synchronization are one part, Humans being represented – e.g., as Avatars, and their diagrammatic dynamics must look real:

“if humans are represented, then not only must they look real (for example, in terms of geometry, light reflection, light scattering, etc.), but their behavior must be realistic, ranging from subtle changes in facial expression, eye movements, body movements and, gestures, to changes in folds of clothing as the characters move. Realism includes characters apparently seeing and looking at the participant, and being able to engage in meaningful interactions, even if not conversations. This is becoming possible to some extent with volumetric capture and rendering of people— certainly on the rendering side, if not yet with respect to interaction.” (SLATER et al., 2020, p.4)

With the ability to replicate a wide range of human facial expressions, movements, and gestures, AI avatars can create a more accurate and engaging representation of the real person.

REHEARSAL 2: SCHEMATISM AS FIGURATION: EMBODIED SCHEMATISM, FACIAL ORIENTATION, AND THE AESTHETICS OF THE DIAGRAM CATEGORY APPLIED TO THE FACE

In a sense, the classical mannerism of the beautiful Face is renegotiated by digital faces by using baby schemata to produce likability effects, and thus, the Face becomes the place par excellence of empirical judgment of beauty *schema without concept*⁸ or of an aesthetic judgment of cuteness aesthetics in concerning schematic faces of Avatar or uncanny aesthetics when referring to the familiar unfamiliarity or unfamiliar familiarity of generated and constructed faces that are animated and at certain moments reveal their artificiality as algorithmic non-biologic agentic systems, or AI-Artefacts that mimic to be actors as well by their facial movements mimicking basic emotion presentations.

Kant debates the complexity of traces that are perceived together in the outline of the face formation {*Umriß der Gesichtsbildung* (KU, §16, B50, p.84) } – that I see as a starting point of the facial visual-spatial diagram that in the notion of Kant would be an exemplary beautiful or attractive face, such as described later on in the XX century in a biological ethological aesthetic category of the baby schema proposed by Konrad Lorenz- and thus would not be mediated by concepts, but would trigger a consequential caring instinct.

How could the beauty of a face correspond to the Kantian idea of beauty?

Is the beauty of a face a) a free beauty such as that of Kant's example of the beauty of a flower (*pulchritudo vaga* or *Naturschöne* KU, §16, B 48, p.83)? Or is the beauty of a face rather related to Kant's exemplary description of the beauty of b) a man, a woman, or a child- seen as a *pulchritudo adhaerens* or *bedingte Schönheit*, that is, as a conceptually dependent beauty?

For the judgment of Avatar faces constructed and animated or generated by machine learning algorithms in the similitude of the biological baby schema, either as a pure judgment of taste (*reine(s) Geschmacksurteil*) that is meant when we refer to positive likability judgments of faces as empirical judgments (*Erfahrungsurteil*), attractability and beauty that would have no need of a conceptual language in beforehand of aesthetic judgment, or when the aesthetic judgment conceptually mediated Avatar faces using baby schemata are constructed as if being a facial landscape, or as a Kantian edifice (*Gebäude*), or a church construction that had a façade to be beautified.

Then a facial transformation of beauty outlines that are part of a complex cultural image of man (such as a man as a warrior in Kant's case) or an illustrative facial add-on such as a facial make-up or a face-tattoo (another semiotic cultural layer of a facial sign on the faciality sheet) in the example given by Kant of a man from New Zealand:

“eine Gestalt mit allerlei Schnörkeln und leichten, doch regelmäßigen Zügen, wie die Neuseeländer mit ihren Tätowieren tun, verschönern können, wenn es nur nicht ein Mensch wäre; und dieser könnte viel feinere Züge und einen gefälligeren sanfteren Umriß der Gesichtsbildung haben, wenn er nicht nur einen Mann oder gar einen kriegerischen vorstellen sollte.”(KANT, KU, B50, §16, pp.84-85).

By applying Kant's idea of Schematism to AI Avatars' faciality, we heed that Kant's Schematism is based on his notion that we can have knowledge only through experience (empiricism) but that we also have innate ideas (rationalism), which guide our interpretation of experience. The place of the Kantian Schema is perception as the synthetic unification of the intuitively given objects of perception⁹ mediated by the synthetic Gemüth in the imagination. In Immanuel Kant's Critique of Pure Reason, the concept of Schematism is presented as a 'hidden art.' However, in our application, it seems that the facial Schema will not be able to stay on the level of a pure transcendental plane but come down to earth as an incarnated faciality Avatar. But even here, we can see interesting points in parallel of *empirical Schema* and a *type* as proposed by Edmund Husserl:

“Husserl's phenomenology, on the contrary{to Kant}, is exclusively concerned with concepts arising from experience and, at times, from a supplementary idealization. Thus, the comparison between the Kantian Schema and the Husserlian type cannot be performed through pure concepts of understanding. To compare the functions of the Schema and the type, we must restrict ourselves to the realm of empirical concepts, such as “house” or “dog.” This, in turn, calls for a rereading of Kant's theory of schemata with a new interest, namely, in the possibility and application of schemata of empirical concepts.” (LOHMAR, 2003, p.89)

SCENE 2.1: TOWARDS FIGURATION

Sybille Krämer (2016), in her *Grundlinien einer Diagrammatologie*, has recently reread the Schematism in Kant following the orientation of thinking, not only by our always already oriented body as Kant famously showed in his “Was heißt sich im Denken orientieren?”. Krämer

especially takes up Kant's (*Von dem ersten Grunde des Unterschiedes der Gegenden im Raume*, 1768) double notion of *Lage*) and *Gegend* that founds the principle of diagrammatological planarity (*Flächigkeit*) – based on the human embodied planarity of body matrixes¹⁰ – for Krämer in which then inscriptions or actuality diagrams occur:

“Alles, was ausgedehnt ist, hat nicht nur eine „Lage“, sondern setzt auch eine „Gegend“ voraus. Das, was „Gegend“ bedeutet, ist bestimmbar durch das „Verhältnis auf die Seiten unseres Körpers“. Diese Bezugnahme auf unsere Körperseiten wird so grundlegend für den Begriff der „Gegend“, daß sogar Urteile über „Weltgegenden“ der Strukturierung durch die Gerichtetheit unserer Körperseiten nicht etwa vorausgehen, sondern umgekehrt von dieser abhängig sind. Kant gründiert alles, was gerichtet ist, phänomenal an der durch die Körper Korporalität des Menschen gestifteten Ordnung. Jeder –nicht nur der menschliche– Körper kann in drei¹¹ sich rechtwinklig schneidende Flächen aufgeteilt werden.“ (KRÄMER, 2016, p.239).

The orientational structuring of our directional body sides of planar inscriptions in which *Gegend* (horizontal matrix: *oben/unten* perpendicular matrix: *hinten/vorn*; vertical matrix: *rechts/links*) founds all that is directed by the phenomenal order of the corporality is the orientational notion of the sides of our body and *Lage* the positioning in a delimited space, as well as incongruent opposites (*incongruentes Gegenstück*, Kant 1768:382, AA2) of chirality {*Händigkeit*} of our left and right hand: knowing as directed path by a descriptive hand-writing of a constructive reason based on thinking with schemata of writing and drawing, of describing and outlining {*verzeichnen*}- und distinguished four different notions that do not maintain Kant's Schema exclusively on the level of sign-mediating epistemology: Krämer (2016) follows the line of thought of Eva Schaper (1964) that the question of the schematism chapter in Kant's Critique of Pure Reason follows up against pure constructionalism¹² that the forming and intellectual actions of the subject can only lead to objective knowledge because what is given in the senses and as such is and must be constituted in a certain way. Krämer (2016:252-266) notes in Kant's schematism a fourfold method: First of all, the Schema is a *method of the imagination* {*Verfahren der Einbildungskraft* [KANT, KrV, B179ff]}. It provides a concept with an image [KANT, KrV, B179]. In this sense, schemata of geometrical objects determine *spatial relations*. The second determination of the Schema is that it follows the rules of figural synthesis¹³: *Figuration*¹⁴. This means that the Schema produces images but is no image in itself [KANT, KrV, B180]. Thirdly *schemata* are nothing else than *temporal determinations* {“*Die Schemata sind nichts als Zeitbestimmungen*” [KANT, KrV, B184] cf. KRÄMER, 2016, p.252) thus present themselves in an inner sense, one after the other, in which structure becomes construction in time. Fourthly schematization as the “hidden art in the depth of the human soul” {“*verborgene Kunst in den Tiefen der menschlichen Seele*”; [KANT, KrV, B181/A142]} the creation of images without being itself an image, the rule of synthesis of the imagination or figural synthesis. Krämer asks with Kant *how* phenomena can be subsumed at all under concepts regarding their diversity. Krämer notes that the function of the Schema lies in *mediation* between the particular phenomenality and the general conception.

SCENE 2.3 PROLEGOMENA TOWARDS AESTHETIC QUALITIES OF FACIAL DIAGRAMMS

Using Stjernfelt's¹⁵ (2022, p.139) post-Kantian reading of Peirce's generality notion of the diagram applied to the face-emotion relation, the *type/token/tone* distinction is relevant when thinking about nuance or tone of a facial movement inference, the token as a specific moment or instant of presentation and the type of faciality that is presented. Stjernfelt (2022) notes 32 *aesthetic qualities* of the diagram, besides principles of Stylization, Typification, Categorization, Representation, Discretization, Compactification, or Optimization present in the diagram. How could we interrelate the complex diagram notions of aesthetic qualities of the categories of Stjernfelt applied to the field of faces- *facial diagrams* if you like- where we could focus on diagrammatic perception (aesthesis), diagram manipulation(techné) and diagram construction (poiesis) and aesthetic qualities of the diagram. Several possibilities in future research can be explored such as- but not limited to:

- a) Diagram and *Abstractness*. The debate on Face involves the discussion of abstract concepts (Peircean “hypostatic abstraction”) that attempt to capture the idea of faciality, such as the “average Face, “by measurement and coding systems such as “FACS “or fMRI. By connecting these abstract ideas with measurable aspects of faciality, such as measuring the Face, codifying it into a digital double, topological landscape mask, or associated action/habit, we would be able to debate aesthetic qualities from them to draw broader conclusions about human perception, however fallible they are. Moreover, it is crucial to combine this with a philosophical treatment of the Face as a symbol as given in approaches that project the image of the world/ human/ values/effects onto the Face and could, in another research, be explored with Kant's *hypotyposis* account and Peirce's complex notion of semiotic signs.
- b) Diagrammatic *Analyticity*: Algorithmic faciality is an example of how technology can analyze the Face in terms of codification and measuring the average Face.
- c) *Arrows* as facial diagrams. *Gerichtetheit* or intentionality of the eye-gaze and the interaction with the Face of the other. Joint attention needs the possibility of projective vectors that, in diagrams, are often expressed as arrows. Arrows connect different viewpoints of the Face and are used to map out topological landscapes.
- d) Diagram *Constructivity*. By using FACS (Facial Action Coding System) methods as a standard measure of facial muscles' action behavior, it is possible to generate a seemingly realistic facial emotion “expression” by encoding certain features such as wrinkles or eye movement for signal processing.
- e) Diagram *Dots*. Points are used as markers when mapping out facial features in order to create a digital double or mask, which can then be manipulated digitally.
- f) Diagrammatic *Filling-In*. It is possible to fill in gaps in scientific knowledge about face perception by using algorithmic faciality, which utilizes computer vision algorithms for the automated analysis of facial expressions and movements.

REHEARSAL 3: CRITICALLY MAPPING FACIAL DIAGRAMS- BABY SCHEMA, TODOROV'S FACIAL GLANCE INFERENCES, EKMAN'S FACS, AND THE PROBLEM OF FACIAL PHYSIOGNOMY

SCENE 3.1: BABY SCHEMA AND KAWAII/CUTENESS AESTHETICS OF THE FACE

In the evolutionary history of the human Face, human faciality has evolved to be less fixed and more dynamic for social interaction and enhanced social tolerance and mimic gestural social signaling capacity that “increased the range of visible motion of the eyebrows among modern humans” (LACRUZ et al., 2019; GODINHO et al., 2018). Therefore, the philosophy of biological aesthetics and psychology is concerned with understanding the ways in which biological and psychological processes shape and are shaped by aesthetic experiences and judgments. In the context of “naturalization”¹⁶ of knowledge as proposed by Konrad Lorenz, “known for his studies of imprinting in animals and other studies that regarded animal behavior as an evolutionarily adaptive trait” (JANICH, 2010, p.166) among others, with Janich¹⁷ (2010) we should heed critically¹⁸ the concept of faciality, gaze, and emotional expression plays a central role in how we perceive and interact with others, and how these perceptions and interactions shape our aesthetic experiences. Thus, it seems important to scrutinize further in upcoming research how the use of the facial Schema in scientific and aesthetic fields has been explored since Kant's Schematism. It seems important to explore the biological and psychological factors of facial diagrams, for instance, in aesthetic, social terms of *attractiveness* and *likeability* of our social gaze shared attention and attention direction towards cuteness aesthetics such as applied in the construction of algorithmic AI Avatars and virtual humans' faciality based on the baby schema as explored in Ethology since Konrad Lorenz. Avatars as graphical representations and even AI avatars that mimic not only human morphology but as well action schemata could be called -if used in Avatar studies- *Attrappen* in the methodology¹⁹ terms of Lorenz if they use certain specific characteristics such as the cuteness of the baby schema face in the line in which puppets are used as substituting objects (*Ersatzobjekte*) on which people vent their need for care, be it in play, be it in lowering of thresholds caused by lack of the proper object by the loveliness of the *Ersatz*:

“Alle Lebewesen, ja selbst alle unbelebten Attrappen, die mehrere der erwähnten Merkmale zeigen, wirken „herzig“, und zwar in einer geradezu erstaunlichen Einelligkeit bei den verschiedensten Menschen.“ (LORENZ, 1943, p.275)

In 1943 Konrad Lorenz published his study “*Die angeborenen Formen möglicher Erfahrung*” to explain why certain external²⁰ physical features such as round head-proportions are perceived as cute (*niedlich*) in a child or a young animal such as desert jumping mouse or a robin—known as *Kindchenschema* or “baby-schema”—elicits somatic external social caretaking or breeding behavior from other individuals. The famous facial visual diagram that Lorenz presents with four baby faces of humans and animals on the left side of the diagrammatic table and four adult exemplars on the right side is called the “*Brutpflegereaktion auslösende Schema des Menschen*” (Lorenz 1943:276) and concentrates on the head proportions that on the right side are perceived as cute (“*niedlich*”). Central features of the *Kindchenschema* commonly associated with infantile appearance evoking a caregiving response in humans include besides the head

shape (ALLEY, 1981) of a large forehead, big eyes, and a small nose and chin, small Face, small ears, short limbs, clumsy gait. Among other differences²¹, the Baby Schema effect is said to be more evident in women²² than in men, suggesting gender differences in the processing of infants' faces despite individual differences in processing faces and its inferred consequences.

Konrad Lorenz's ethological approach already in 1935²³ mentions the facial sense (*Gesichtssinn*²⁴) as a facial recognizing Schema and distinguishes between simple innate (*angeborenes*) schemata of animal action plan behavior (*Instinkthandlung*) in an *artspezifischer Funktionsplan* and cultural "imprinted" or adoptive (*erworbene Handlung*) more complex trained²⁵ avian behavioral schemata triggering parenting behavior via *Auslöseschematen* that in the social *Kumpanschema* in birds work together as a functional unity²⁶, suggests that a part of our understanding of facial expressions and gestures is innate and biologically determined, shaped by evolutionary pressures to facilitate communication and social bonding, besides its acquired trained action and social interaction schemata. Lorenz argued that certain facial features trigger caretaking evolutionary behavior and function as increasing offspring survival rates due to various factors, including the protection of food resources. Lorenz's work was largely correlative, focusing primarily on establishing connections between baby schema and particular behaviors without attempting to explain underlying psychological forces at play. The presence of these features has been found to elicit a positive emotional response and increase the perceived attractiveness, beauty, and likability of an individual or object.

The concept of "cuteness" is based on the idea of the "baby schema," which is the set of physical features that are perceived as cute and elicit caretaking behavior in others. Thus, future research should discuss the role of cuteness in avatar design and how it can be used to enhance gameplay and create new forms of communication and expression in the digital world. It also discusses the potential for avatar-driven faces to become an important part of our daily lives and the importance of understanding the psychological forces at play in the perception of cuteness and how mediated and enacted dramaturgies make us attend to faces of the other again and again.

"Fisher's target was the handicap feature like the peacock's tail which caused Darwin such sleepless nights: what started off as an honest signal of fitness, once locked into an automated stimulus-response cycle, can accumulate to a degree where it is actually detrimental. Such an originally virtuous cycle may lie behind the irresistible attraction of 'cuteness' features: if parents invest more in 'cuter' offspring, their own preferences may be passed on as well as the stimulus that triggers the preference; similarly, if mates by this mechanism come to prefer 'cuter' mates, the process can accelerate. At the same time, alloparenting reduces the mother's investment, so human mothers are more likely to abandon infants than chimpanzee mothers [56]. Thus 'cuteness' becomes an important counterweight to possible abandonment in times of stress, so reinforcing the fitness benefits of 'cute' features. (...)" (Levinson 2022:4).

In the context of AI avatars, the use of the baby schema in the design of synthetic facial features has been found to increase user acceptance and trust. Thus, the theme of human facial differences and attempts to create facial categories to explain variations in physical characteristics and cultural practices becomes important. For example, a study by Song et al. (2021) found that baby schema features not only in human and animal faces induce cuteness

perception and gaze allocation (BORGHI et al., 2014) but as well holds true in social robots that could increase anthropomorphic trustworthiness rated as more trustworthy and likable compared to those without these features.

The *baby schema* implies either/or the *youthful*²⁷ and de-aging strategies, *innocent and helpless*²⁸, and/or *child-likeness*- important in economic models for calling for attention, e.g., for means of consumption²⁹, in which the subordinate and unthreatening technological commodification of the Face -in the sense of Ngai (2012, p.1), limits and discloses the broad spectrum of alterity possibilities and the experience of the uncanny in a simulated face-to-face encounter that boils down to interacting in a preset (pre-created) meta-world, in which cute accessories are added, the Face becoming a *cute attractor for human-machine and online/ digital interaction*. *Kawaii* has been reduced to Cute, defined as *sweetness*³⁰ - “the merely innocent, playful, guileless, helpless” (MAY, 2019, p.26). As used in the German exclamation looking at a fluffy little dog- “Ach wie süß!”- which, however, is just a part of a large language spectrum that reaches from *sweetness* into the *uncanny* on the other side of it, and often is presented to us in curved-shaped objects and situations of a mix of the *uncannily cute*³¹ and, moreover, *Kawaii* is a much larger spectrum and already is worked on as an engineered experience (OHKURA, 2019) that implies the aesthetic experience of artificial products, forms, pink and pastel color and tactile texture or fluffy touch culture in Japanese culture and language (KUMAGAI, 2022) of high-frequency sounds and labial, high frequency, and sonorant consonants.

Regarding the facial Schema, Kant’s concept of Schematism suggests that our understanding of the world is shaped by how we structure and categorize sensory data. In this sense, the facial Schema is a way of organizing and interpreting the complex facial expressions and gestures we encounter in social interactions. Today we can see how the baby schema is applied in a cultural multiple and complex Japanese *Kawaii* aesthetics³² - theoretically and empirically in the context of artificial intelligence (AI) avatars and the role it plays in the perceived likability and trustworthiness of these avatars.

SCENE 3.2: TODOROV’S CRITIC OF FAST FACIAL GLANCE INFERENCES

Trustworthiness judgments of faces -due to their quick judgment onset while a face is being presented (33ms; SOUTH PALAMARES & YOUNG, 2018; WILLIS & TODOROV, 2006)- are highly fallible: Todorov, in his book “Face Value” (2017), lays out a whole theory of the problematic first impressions that are cemented in the digital age with data-driven computational analysis models of face-recognition and automatic faciality *expression-emotion* attribution schemata- that goes beyond facial recognition as one of the fields that AI supposedly is said to be highly successful in the sense of statistical pattern recognition (cf. LANDGREBE & SMITH, 2022) -fostering racial biases³³, such as in the case of the company Faception among other revivals³⁴ of physiognomy by data-driven deep learning:

“An Israeli technology start-up is offering its services in facial profiling to private businesses and governments. Rather than using tape to measure faces, they use modern computer science methods.

Their promise is the old physiognomists' promise: "profiling people and revealing their personality based only on their facial image." We are tempted by the physiognomists' promise because it is easy to confuse our immediate impressions of the Face with seeing the character of the face owner. Grasping the appeal of this promise and the significance of first impressions in everyday life begins with the history of physiognomy and its inherent connections to "scientific" racism." (TODOROV, 2017, p.10).

AI apps such as *Faception* use fallible face-emotion-character schemata, as they rely on algorithms and data that are subject to error and bias and can produce inaccurate or misleading results. Therefore, it is important to approach these technologies with caution and skepticism and to recognize their limitations and potential biases. However, is physiognomy not only a modern phenomenon at the start of the science of the face age, but as a *landmarks-map-like reading of interpretations off of the body* is found already in ancient cultural expressions from Indian Buddhism to Ming Dynasty ritualistic fortune reading out of the body the relation of individual, society, and cosmos in the line of the *bodily microcosm* in "Early Chinese medical and cosmological texts that tend to see the human body as a replica of the universe, sharing its morphological structure and energetic composition with the cosmos" (WANG³⁵, 2020, p.26).

Avatars as placeholders of digital doubles or digital humans, as well as gamified and playable characters, make part of this development, and independently if we believe in the continuity or not of physical reality via enhanced or mixed realities to virtual reality worlds such as the Metaverse, one point seems undeniable: The creation of an Avatar with an artificial intelligence endowed faciality more or less photorealistic or more or less fantastic and different from our Face is the entry point or place to negotiate in the first place who we think we are.

SCENE 3.3: EKMAN'S FACS UNIVERSAL FACIAL EMOTION EXPRESSIONS CODING SYSTEM: THE FALLIBILITY OF FACIAL MOVEMENT-EMOTION RELATION DIAGRAMS

Paul Ekman's Facial Action Coding System (FACS) is another diagrammatic method for identifying and analyzing faciality diagrams in which facial muscle movements are inferred as "expressions of emotion."

However, some researchers have criticized the FACS for its lack of reliability, as the same emotional categories are not consistently expressed or perceived from a standard set of facial movements. Additionally, the FACS has been criticized for its limited scope, as it only focuses on a small number of basic emotions and does not account for the complexity and context-dependent nature of emotional expressions. Some have argued that face-to-face encounter, in which social context, multimodal³⁶ body language, and other factors are considered, is a more comprehensive and reliable method for studying emotional expressions. Others have proposed alternative approaches, such as the behavioral ecology view of facial displays (BECV), which conceives of facial expressions as tools for social influence rather than fixed read-outs of internal states. Paul Ekman's FACS (Facial Action Coding System) and his idea of "unmasking the face" (cf. EKMAN & FRIESEN, 1975) was invented for the discovery of "true" or even universal

basic emotions recognition. The idea to look “behind the facial mask” was a success story in the field of experimental empirical psychology from the 1970s³⁷ onwards, as it provided a prolific systematic and comprehensive method for identifying and analyzing facial expressions of emotion. This system was based on the idea that certain facial muscle movements are associated with specific emotions and that these emotions can be accurately identified by analyzing these facial movements. But Paul Ekman’s minimal, universal, evolutionary, emotional model of discrete finite, basic emotions (disgust, sadness, happiness, fear, anger, contempt, surprise), also called “Basic Emotion Theory” (BAT), triggered a debate³⁸ that in the time of algorithmic faciality and facial datasets is still ongoing.

What kind of exploits of “facial data” is scientific? Does the use of FACS (Facial Action Coding System) offer scientific accuracy when measuring emotions or expressions from someone’s Face? Should Ekman’s facial movement-emotion diagram data be used for further research purposes or even marketing campaigns, depending on its usage intentions? Weigel’s critique is apparent, but often overlooked: the standardization of scientific methods often obfuscates conceptual difficulties in the initial phases. In the case of Ekman, the first approach was a self-help book by Ekman & Friesen in 1975 in which not only were the facial expressions photographed were staged in a dramaturgy of facial scenes. Actors restaged certain muscular movements that are classically attributed to Aristotelian categories of emotions and with the help of acting out these “emotions”. Thus, the book gave advice how to play them by acting facial emotional masks, before measuring faces. This method was called facial action coding system, or “FACS”, and in 1978 provided reliable data for affective sciences and their applications. Later, the results of FACS could then be used for further research in other areas such as artificial intelligence, robotics and computer vision technologies related to recognizing human facial expressions in various scenarios including security settings where reliability is paramount. On the contrary, the face-to-face encounter is even more than a utilitarian critical view of Ekman’s model, countering the possibility of intentionally modeling the Face in the act of social display to influence others and thus programming the affective Face and its reaction depending on internal and external contexts or adding a fully embodied and ecological approach to include facial emotion displays. The most important criticism is that faces should be researched in a social encounter. Faces meet. We encounter each other, looking at their Face and following their gestures, including their language and body language.

“Facial displays are not fixed, semantic read-outs of internal states such as emotions or intentions, but flexible tools for social influence. Facial displays are not about us but about changing the behavior of those around us. The behavioral ecology view of facial displays (BECV) is an externalist and functionalist approach to facial behavior that reconceives it as signaling contingent social action.” (CRIVELLI & FRIEDLUND, 2018, p.1)

Paul Ekman’s FACS is a system that aims to identify and classify universal facial expressions of emotion.

However, according to Lisa Feldman Barrett and colleagues, this system is scientifically flawed for several reasons: First, the FACS lacks reliability, meaning that the same emotional

categories are not consistently expressed or perceived from a standard set of facial movements. This means that different people may interpret the same facial expression in different ways, which undermines the validity of the FACS. Second, the FACS lacks specificity, meaning that there is no unique mapping between a particular configuration of facial movements and an emotional category. This means that the same facial expression can be interpreted as representing different emotions, which again undermines the validity of the FACS. Moreover, FACS has limited generalizability, meaning that the effects of context and culture have not been adequately accounted for. This means that the FACS may not be applicable in all cultural contexts, which limits its usefulness in understanding the full range of human emotional expression.

To address these issues, Barrett and colleagues (2019) offer several recommendations for reading scientific studies on emotion. These recommendations include paying attention to the reliability, specificity, and generalizability of the data, as well as considering the effects of context and culture on emotional expression and perception. Additionally, they recommend giving more weight to studies that measure facial movements in more natural environments and that consider the ways in which emotions are understood in different cultures. The notion of universal facial expressions of emotion, as proposed by the FACS, is fallible, and further research is needed to understand the full range and complexity of human emotional expression. By following the recommendations outlined by Feldman Barrett and colleagues, we can begin to move towards a more scientifically sound and comprehensive understanding of the relationship between faciality and emotion.

Since the development of FACS as facial movement-emotion relation diagrams show fallible scientificity, our understanding of the role of facial movements and inference of emotion has evolved significantly. It is now widely accepted that facial expressions are not simply a reflection of an individual's internal emotional state but rather serve a functional purpose in social interaction, which shows the importance of social cues in gaze behavior. For example, facial expressions can be used to communicate one's intentions and emotions to others, as well as to influence the behavior of others. It can be argued that the facial expressions of an organism can serve as a predictive indicator of their behavioral proclivities, with the capacity to discern another's intent to approach or avoid acting as a crucial mediating factor in social interaction. The fundamental relationship between *gaze* and *emotion*, as well as their shared function in signaling approach or avoidance behaviors, serves as a further testament to the importance of facial expressions and gaze in the regulation of social interactions. This shift in understanding has had important implications for the development of artificial or algorithmic faciality and gaze in social AI systems. In order to be effective, these systems must be able to accurately interpret and respond to the facial expressions and gaze of their human counterparts. This requires a nuanced understanding of the role that facial expressions and gaze play in social interaction and the ability to accurately identify and interpret the emotions being conveyed through these channels.

SCENE 3.4: FACIALITY DIAGRAMS AND THE PROBLEMATIC HERITAGE OF PHYSIOGNOMY

The proper scientific approaches depend on where the focus is laid upon in the observation of the facial landscape or its social and miming behavior. Weigel distinguishes in historically overcome “sciences” of interpretation of fixed or maintaining parts of the Face such as Physiognomy of Carus (1853:17 cit in Weigel 2015:93) who distinguishes between “*Wesentliche und Bleibende*” physiognomic characteristics from “*Zufällige und Momentanen*” as a sign of the “pathognomic” and on the soft and moving parts (miming traces) such as described by Piderik (1858/1886). Suppose the focus of Human beings is on the human capacity of being social. In that case it becomes evident that humans are especially good at face perception (Haxby³⁹ et al.2000) of the other and, by the power of imagination, can read faces into almost everything (McNeill 1998) such as attributing or projecting faces to appearances of shadowy elevations in lunar landscapes or too complex cloud dynamics. We as well read off emotional (fallible) diagrammatic inferences from muscular facial movements. And we can also use Avatars to change our body schema in an enfacement illusion⁴⁰ or augment the plasticity by *evaluating control schemas* (Laha et al. 2016) of the third arm of an Avatar as a transformation of the multiple *body schema*⁴¹ in action relations to a face and Avatar faciality. This brings us to the first problematic issue of the multifaceted plural concepts of the Face: What place is this that we call the Face? For the phenomenologist Bernhard Waldenfels (2005:2017) reading the otherness of the Face of Levinas it is a place of philosophical tension and entanglement between *Gesicht* and *Gesichtsverlust*, between *Achtung vor der Fremdheit des Anderen* and the *Erforderungen des rechtlichen Ausgleichs*, of the holy persona⁴² and the profane Face and masks a marked position where ethics and politics are entangled without one coinciding with the other and where these faciality tensions happen and are renegotiated on the ground of aesthetics.

A second issue is: What exactly is it that we speak about when we speak of *a face*, *to face*, or *to unface*, and facial diagrams such as in artificial or *algorithmic faciality* in AI Avatars?

“Was wir im Deutschen Gesicht nennen, ist weniger einfach und einheitlich als vermutet. Es gibt kein basic face im Sinne von Dantos basic actions. Schon die Konnotationen, die von den jeweiligen Kernwörtern wachgerufen werden, differenzieren beträchtlich. Während das lateinische Wort facies gleich dem davon abgeleiteten englischen Wort face, an das Machen (facere) erinnert und somit die plastische Gesichtsform in den Vordergrund rückt, verweist das französische Wort visage ebenso wie das deutsche Wort Gesicht auf das Sehen und Gesehenwerden. Der hebräische Ausdruck panim betont dagegen, ähnlich wie das deutsche Wort Angesicht oder Antlitz, den speziellen Prozess des facing, den Anblick, der blitzartig aufleuchtet und der sich im Wechselblick vervielfältigt. Das russische Wort lico bedeutet Gesicht, Wange, aber auch Person. In letzterem ähnelt es dem griechischen Wort prósopon; dieses bezieht sich wörtlich auf den Akt des Anblickens, es steht aber nicht nur für das Gesicht, sondern auch für Masken und Rollen, die im lateinischen mit persona wiedergegeben werden. So verbinden sich Anblick und Anrede.“ (WALDENFELS, 2005, 187-188)

For Bernhard Waldenfels, the phenomenologist of the other/stranger, there is no unifiable basic faciality that could reassure us with a universal typology of a fixed facial feature diagram and biologically consolidated action plan or its cultural meaning, as each culture underlines already in its language presentation of the Face another faciality aspect that relates to a) the topology of the face and visuality sense of the face b) the mimic action habits such as

gaze direction c) social dimension of facing the other and the Face to face encounter within a dramaturgies of countenances d) the role, mask and persona, and identity of the Face.

In the historical debate on the “science of man” (Hume) that the Aufklärung in Göttingen named “Wissenschaft vom Menschen” besides Blumenbach already Georg Christoph Lichtenberg (1742-1799) had noted in his severe and sharp critic of Lavater’s⁴³ “science” of an ontological fixation as physiognomy in the debate on “human varieties” of characters and stereotypes that, that the principle to read humans facial features and endow these features (or empirical schemata) with predictive qualities of categories, acts, character traits⁴⁴ or behavior dogmatically interpreted as a “science” or a mirror of a “law of nature” might lead to predictive physiognomic auto-da-fe’s⁴⁵ as a prejudgment of the innocent.

As we can see, the philosophy, science, and culture of the human Face are intensely debated fields of thinking about ourselves as a Face and body, as a semiotic field of readability of a symbolic *imago Mundi* or even as a concentrated facial *artifact* and a metonymic facial *pars pro toto* of the *humanum*⁴⁶: human beings that not only have a face, but have a social and cultural urge to “produce” (Deleuze 1997:24-25; 57) faces⁴⁷.

We might even think the Face as a lively signifying *sur*⁴⁸face of ourselves or as a person: a field of negotiations of the encounter of a familiar, the other in the face-to-face (Levinas) as opposed to the visual-spatial facial landscape of the death mask or the dead gaze (Schlosser 1993; Weigel 2013,7).

In cultures of digitality, the Face has thus become a highly negotiated place between the real and the virtual world, the showing, masking, and hiding⁴⁹ of the person, and its image, the facial display, affective expression, and fallible physiognomic⁵⁰ presentations inferred as “impressions”⁵¹ of likeability, attractiveness, trustworthiness judgments of the Face of ourselves and the other.

If we take a Kantian notion of the cultural conditionality of our judgment of faces, we could consider Lavater’s quest of physiognomic facial Schema as an exemplification of a cultural ideology – in the early phase of a fallible science of man- of attributing ideal facial Avatars with an ideology in which the “apparition” and God-like image aesthetics of an *Avatar of perfection* in Lavater’s time would be longed for by putting a face to genius “apparition” or descendance, or reciprocally denying geniality to an inadequate facial “ugly” physiognomy of an ordinary human face: “*Es giebt eine Menge Stirnen und Umrisse, von denen sich mit Sicherheit sagen läßt: ‘Sie sind durchaus nicht für Genien gebaut.’*” Lavater 1984{1775-1778}: 298.

More than the production of “digital faces without a body” (Meyer 2021)⁵², Ganism and other computer-generated or machine - learning faciality produces *faciality design without a face*, AI Avatars that mimic human facial schemata questions us as human beings: “What happens to us when technology has a human face?⁵³” What happens to us when putting a photorealistic face on technology? AI faces can talk, interact with us, become intimate with us show and extract emotional dimensions and see us in real-time, using diagrammatic strategies of face generations. What will happen to our humanity, our human face when our AI Avatar faciality outlives us?

Abstract: As the post-Kantian schēma tradition emphasizes the importance of using mental concepts and frameworks to understand and interpret sensory experiences, in our case dramaturgies of faciality, rethinking different schemata concepts in various rehearsals and theoretical scenes seem fruitful to critically heed the development and use of faciality applied to AI avatars in virtual and augmented reality environments. One theoretical rehearsal to be explored is the baby schema theory as proposed by Konrad Lorenz to explain why certain physical features are perceived as cute. In recent years, the baby schema-cuteness relation has also been studied culturally in Kawaii aesthetics and in the context of virtual humans. In another rehearsal we critically heed exemplary faciality diagrams of Paul Ekman's Facial Action Coding System (FACS) as a system for identifying and analyzing facial expressions of emotion based on the problematic idea that specific facial muscle movements correspond to emotions as a highly questionable facial diagrams (Stjernfelt/Peirce) –fallible as such – and finally glimpse towards the scenes of Todorov's critic of facial rapid glance inferences and Lavater's physiognomics.

Keywords: Facial diagrams, AI Avatars, Schematism, Babyschema, Kawaii Aesthetics, Critic of Physiognomy

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NOTES

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² Cf. the method of “*Szenische Ikonologie*” in which a short definition of scene is given: „*Der Ausdruck Szene stammt aus dem Griechischen. Das Wort S k e n e (σκηνή), verwandt mit s k i a (σκιά, Schatten), bedeutet als „Schattenraum“ ursprünglich Zelt, Hütte. Bühne. In dieser Focussierung ging er auch ins Lateinische über und bedeutet hier zunächst als s c e n a Bühne Schauplatz, Öffentlichkeit, Publikum, Spiel. Schon im Lateinischen kam es zu einer weiteren Einengung. S c e n a , wie man jetzt schrieb, fungierte nicht mehr nur als Bezeichnung der Bühne, sondern geradegu als dramaturgischer Begriff.*“ (HOGREBE, 2019, p.22)

³ I use *AI Avatars* while another word field is related to the digital such as “digital people” or “digital person” (Soul Machines 2022). Wang et al (2022) propose the following keywords used in parallel hinging on different aspects and functions of “virtual” humans: “Metahuman, Digital Human, Virtual Human, Avatar, AI Anchor, Virtual Anchor, AI Digital Human, Virtual Idol, Virtual KOL, Virtual Actor, Virtual Host, Virtual Spokesperson, Virtual Influencer, Virtual Brand Officer, Virtual Customer Service, Virtual Tour Guide, Virtual Narrator”

⁴ The actual entry on “Virtual Human” on Wikipedia (2022; retrieved 31.12.2022) distinguishes the following two classes of virtual humans- both of which are however more entangled than the Wikipedia definition proposes: “There are two main classes of Virtual Humans: | Avatars: an avatar (computing) is the graphical representation of the user. Avatars have been popularized by online worlds like The Palace, Second Life, Active Worlds, IMWU, Zepeto and others. | Autonomous Virtual Humans: an autonomous virtual human is an autonomous agent with embodiment or an embodied agent.”

⁵ “metahuman” refers to a virtual image that relies on artificial intelligence technology to imitate humans in appearance, behavior, thinking, and emotional expression. To perform interactive duties, it specifically possesses human perceptual qualities like vision, hearing, and touch. It generally has three characteristics: Specific human characteristics, such as appearance, sex, personality, etc.; human behavior that can be conveyed through words, expressions, and movements; and recognition of the outside world and interaction with others using human intellect.” (GONG et al 2022; cf. ZANG et al 2019; XU et al 2017; YAN et al 2020)

According to these authors the integration of metahumans, or virtual digital humans, into various aspects of daily life is having a significant economic impact (cf. Research and Markets (*Global intelligent virtual assistant market (2020 to 2027)*), the global market for intelligent virtual assistants is expected to reach \$45.1 billion by 2027, growing at a compound annual rate of 34%. The global virtual activity market is also expected to exceed \$474.6 billion in 2028. Cf. the use of „metahumans“ at the Beijing 2022 Winter Olympics (Jun 2022) highlights their potential to have a major presence in entertainment and media among other fields of application.

⁶ Qinetiq is the core team behind the creation of the following Avatars a) digital influencer *Michaela* (n.d.) starred in adverts for brands like Calvin Klein and Prada and *Brud* pioneering a shift into virtual character-driven storytelling that introduce brands to a virtual ecosystem by teaming up with fashion and tech giants, with social campaigns hitting 155+ Million reach in their first week b) *Amelia* (2023) IT and customer service automation and a pioneer in the realm of virtual agents. Boasting over 9 million active users, 108 languages and over 1,000 integrations...„Human connection in the virtual world | *Extraordinary cross platform avatars at scale* | Our avatar operating system will enable dynamic avatars for any platform, unlocking the human potential within the virtual ecosystem, and allowing virtual talent to scale like software.” Qinetiq (2022).

⁷ “Very high quality visual and behavioral realism of virtual humans is becoming increasingly likely and available in the near future. For example, Facebook has been carrying out research and development in this area with impressive results, and similarly Dimension Studios. This will only improve over time as increasing resources are applied to this issue by researchers and companies” (Slater et al 2020:3) cf. <https://www.wired.com/story/facebook-oculus-codec-avatars-vr/> <https://www.dimensionstudio.co/work>

⁸ Cf. Neuffer 2017 on Kant’s notion of „*freies Spiel der Erkenntniskräfte*“ and *Schematisieren ohne Begriff* in relation to beauty das *Schöne* and the *Exemplarische*. The exemplary is seen in Neuffer’s reading of Kant as the schema of beauty „Schema des Schönen“ representing the activity of the power of judgement in the aesthetic judgment when given in the free play of the *Erkenntniskräfte*, while the *Beispiel* functions in the play of the particular with the general „*Spiel zwischen Besonderem und Allgemeinem*“ (Neuffer 2017:85): “Wichtig ist, dass durch das Fehlen eines Allgemeinen für das Exemplarische im ästhetischen Urteil eine Einschränkung nicht gilt, die für Beispiel und Exempel gelten. Anders als diese erscheint jenes nicht zufällig. Ein Beispiel ist zufällig, weil es nur rein willkürlich herausgegriffener Fall einer Regel unter vielen möglichen Fällen ist. Durch diese Zufälligkeit geht es immer darin fehl, das Allgemeine richtig vorzustellen. Dadurch, daß das Exemplarische im ästhetischen Urteil nicht Fall einer Regel ist, ist es die Sache, die es veranschaulichen soll, selbst. Man könnte vom Exemplarischen also auch sagen, es sei *b e i s p i e l h a f t ohne ein Beispiel zu sein.*“ (NEUFFER, 2017, p.86)

⁹ Cf. Lohmar (2003) on parallels and differences of Kantian - pure - *schema* and Husserlian. empirical *type* from experience —and Kants conceptual order and unity that the schema brings into the chaos of sensations in specific:” Schemata are “rules of synthesis,” “rules for determining our intuition,” “methods for presenting a concept in an image,” or, as already mentioned, “universal procedures of the imagination for providing a concept with its image.” However, whereas the image is “a product of the productive imagination’s empirical ability,” the schema is a product of the “pure and a priori imagination.” According to the paradigm of geometrical construction (triangle), the schema, for example, the prescription for the construction of a triangle, is a rule for the production of an intuitive exhibition (*Darstellung*) of the concept. Such a rule is not restricted to a determinate image with determinate measures and contents. The “universality” of the concept is preserved in the schema, which is nothing but the schematized form of the concept. Schemata are rules for the synthesizing activity of the imagination with intuitive material. With their aid one *could* produce all possible images of an object *ad infinitum*.“ (Lohmar, 2003, p.99).

¹⁰ The matrix can also be seen as a diagram modality of the cut/ Schnitt such as combined with flattening that Krämer understands as one of the basic principle of her concept of the diagram: of the introduction of a Peircean *sheet*, that in the science of anatomy is called the cut or *Schnitt*.

¹¹ „In dem körperlichen Raume lassen sich wegen seiner drei Abmessungen drei Flächen denken, die einander insgesamt rechtwinklicht schneiden. Da wir alles, was außer uns ist, durch die Sinnen nur in so fern kennen, als es in Beziehung auf uns selbst steht, so ist kein Wunder, daß wir von dem Verhältniß dieser Durchschnittsflächen zu unserem Körper den ersten Grund bernehmen, den Begriff der Gegenden im Raume zu erzeugen.“ (KANT, 1768, pp.378-9, AA2).

¹² „For example, a blueprint for construction of a bridge stands midway between a general idea and its particular construction in steel, iron, or wood. Schemata provide rules for construction, but have no simple image character or necessary pictorial resemblance.“ (SCHAPER, 1964, p. 272).

¹³ Schaper (1964, p.269) notes that the problematic notion of imagination is first introduced in the sense of figural synthesis *{synthesis speciosa}* in Kants first critique in “the Subjective Deduction in edition A, and is left out in edition B, where it is presented as “figurative synthesis” (*synthesis speciosa*) side by side with the *synthesis intellectualis* [B 151], both being called “transcendental”.”

¹⁴ Another important account of figuration of the mask in an anthropological sense of the act of putting on the mask, would be to explore in further dramaturgic rehearsals of mask and facial diagram in the work in history of art by Erich Auerbach’s (1984) “figura” and its recent rereading and expansion in the “anthropology of figuration” by Descola (2021).

¹⁵ „As no two physical objects are exactly identical, the Type comes in Tokens, which necessarily have a lot of individual, different, superfluous properties that have to be bracketed by the observer in order to grasp the underlying general Type. Given a particular spoken word, e.g., dialect, prosody, voice pitch, speed of pronunciation etc. may have to be bracketed in order to grasp the word Type instantiated. The same goes for diagrams: color, thickness of lines, lacking rectilinearity of lines, imprecision of drawing, and much more may have to be bracketed as accidental token qualities (Peirce: “prescinded”) in order for the simpler, general, ideal type of diagram to be reached. In many cases, the information of which properties are essential to the Type and which ones are accidental and thus only belong to certain Tokens of that Type, comes quasi-automatically, from tradition, context, learning, etc.—in other cases it requires specification by means of explicit symbolic legends, axioms, rules, etc. accompanying the diagram(...) The diagram as Type or Legisign, namely, furnishes the precondition for diagrams to function symbolically, that is, being not only general signs in themselves, but also possessing a general meaning, as when we take the Type of a parabola as the general (hence, symbolic) Diagram for the trajectory of all falling bodies in a field of gravity without friction.“ (STJERNFELT, 2022, p.139).

¹⁶ „Naturalization” (built, in this second phase, around a specifically structured theory of knowledge) means, since Hertz, that *humankind can know nature, because nature has made the human mind its correspondent*. An idea that would only much later, in so-called evolutionary theory of knowledge developed by Konrad Lorenz or Gerhard Vollmer, be taken as a subject for scientific investigation—namely, the idea that the evolutionary process has shaped the human mind’s capacity to understand the natural world (...)(JANICH, 2010, pp.19-20)

¹⁷ „This striking example of naturalization has a number of predecessors in biology. Konrad Lorenz, who, like Wilson, won the Nobel Prize, attempts in *Behind the Mirror* to “search for a natural history of human knowledge” in an epistemological sense, aiming to produce nothing less than a full naturalization of the work of his Königsbergian predecessor Immanuel Kant. Where Kant speaks of the conditions of possibility of experience, in Lorenz the *a priori of knowledge becomes the a posteriori of phylogeny*. The knowledge- dispositions (*Erkenntnisdispositionen*) that Kant imagined are, in such a model, the natural–historical result of evolutionary selection. The expansion of evolutionary biology into the philosophy of knowledge serves not only to naturalize human cognition but to bring the entire history of human culture under the explanatory regime of the natural sciences, from whose perspective culture—singing, books, whatever—looks like nothing more than a succession of natural events.” (JANICH, 2010, 91)

¹⁸ (SCHNASE, 2005, cf. for a social-Darwinist critic: KALIKOW, 1983).

¹⁹ „Solche offensichtlich mechanisch-physiologischen Korrelate zu bestimmten Reizsituationen, solche angeborenen ‘Pradispositionen’ auf bestimmte Schlüsselreize gesetzmäßig anzusprechen, bezeichnen wir als angeborene Schemata, einfach deshalb, weil sie angeboren sind und wie ein ‘Schema’ eine bestimmte für den Organismus lebenswichtige Lage gleichzeitig kennzeichnen und vereinfachen. Die Methode, angeborene Schemata zu erforschen, ist der Attrappenversuch. Das Wort Attrappe kommt von französisch ‘,attrapper’, d. h. fangen, im Sinne von ‘,hinter das Licht fuhren!’. Wie so oft in der Erforschung des Lebens gewinnen wir auch hier unsere Kenntnisse aus den Feblleistungen, d. h. wir schließen aus der absichtlich im Versuch gestörten Funktion auf den normalen Ablauf.“ (LORENZ, 1943, p. 240).

²⁰ Another form of applying schematism to the body is in relation to the body could be in distinguishing the *internal body-schema*, that is still malleable, and the self-reflective stance of the *body-image* as done by Shaun Gallagher since 2005.

²¹ For the Effects of Baby Schema and mere Exposure on Explicit and Implicit Face Processing. *Front Psychol.* 2019 Nov 29;10:2649. doi: 10.3389/fpsyg.2019.02649.) and its sociality- enhancing endocrinal basis (cf.: Hurlemann R., Scheele D. (2016) on the role of oxytocin that urge parents (PLUTCHIK, 1987) to pay *care-giving* attention cf. Brosch et al. (2007), or *attachment* (Bowlby 1969) to *cute* faces. This is said to enhance the survival of offspring as by infantile head shape as an elicitor of adult protection (Cf. ALLEY, 1983) or cuteness perception (cf. KRINGELBACH et al., 2008; GLOCKER et al., 2009)

²² Cf. Baron-Cohen et al.(2003), Glocker et al.(2009), Venturoso et al (2019).

²³ (LORENZ, 1935, pp. 139-140).

²⁴ (LORENZ, 1935, p. 183).; cf Plessner's account of the Gesichtsinn and the social mask is worth further explorations

²⁵ (LORENZ, 1935, p. 141).

²⁶ „Angeborenes Schema und erworbenes Schema eines Artgenossen bilden unter natürlichen Umständen eine funktionelle Einheit.“ (LORENZ, 1935, p.173)

²⁷ Cute and uncanny aesthetic categories are important in the generation or perception of (AI) Avatar influencers because they help to create a sense of connection and familiarity between the viewer and the AI. By making the AI appear more humanlike, viewers are more likely to feel a sense of connection with them, which can lead to increased trust and engagement. Additionally, these aesthetic categories can also help to make the AI appear more approachable and relatable, which can encourage viewers to interact with them.

²⁸ See: Ivy (2010).

²⁹ „cute (an aesthetic disclosing the surprisingly wide spectrum of feelings, ranging from tenderness to aggression, that we harbor toward ostensibly subordinate and unthreatening commodities)“ Ngai (2012, p.1).

³⁰ „Those charming qualities that conjure an existence of perfect innocence, pliancy, and dependence, unburdened by contradiction and complexity, are what we might call “sweet”—the qualities to which mignon in French and Süß in German refer. Here we also find kittens playing with balls of yarn, babies with “dimpled knees and round faces with bright, wide-open eyes and blemishless skin,”² and the puppy with kindly eyes, drooping ears, and soft fur.” (MAY, 2019, p.23).

³¹ „The further we progress away from the purely sweet end of the Cute spectrum, however, the more the characteristics and proportions of the Sweet become distorted into—or tinged by—something unsafe, elusive, alienated, artful, menacing, knowing, apprehensive, absurdist, resilient.” (MAY, 2019, pp.23-24).

³² „The world *kawaii* can be written with the Chinese characters 可愛 (ke'ai), meaning roughly ‘which can be loved’. It appears for the first time in the eleventh century in Murasaki Shikibu's Genji Monogatari as the root word *kawai*. The phonological resemblance to the Chinese pronunciation of ke'ai seems to be merely coincidental.“ (BOTZ-BORNSTEIN, 2016, p.112). The Japanese culture of *Kawaii* is about more than merely sweet and cute faces with narrowed attentional focus induced by the cuteness-triggered positive emoticons (NITTONO et al 2012, p.1). Starting from social embarrassment or face flushing because something is cute it triggers a social embarrassment as a response of not being able to leave alone and respective care: Future research should take up facial schemata research and explore, for instance, the aesthetic concept of “cuteness”- or *kawaii*. *Kawaii* influencers such as Japanese Decora Kurebahasi, Junnyan – who wears a T-shirt with the slogan “Beyond Kawaii”- are provocatively “in your face” rather than on display or on your face. Refinery29TV. (2014, November 5). *What Harajuku girls really look like | style out there | refinery29*. YouTube. Retrieved December 16, 2022, from <https://www.youtube.com/watch?v=WblNctc3ys0> Cf. Manda31409. (2016, June 19). *How to be kawaii in 10 easy steps*. YouTube. Retrieved December 16, 2022, from <https://www.youtube.com/watch?v=UzGmw7OFTGE&t=357s>. Dale (2020:329) sees *kawaii* aesthetics as a tension between cuteness and other aesthetic categories, which opens up new complex fields of reflexion of the diversity in which facial diagrams such as the biological babyschema are contextualized culturally: “*kawaii* combinations not only include *kimokawa* (disgusting), *gurokawa* (grotesque), and *busukawa* (ugly), but also *tsuyokawa* (strong) (AOYAGI & YUEN, 2016, p.101; MILLER, 2011; MYNAVI 2017). These new categories offer a fundamentally different approach than that taken by much scholarship on the cute aesthetic. Instead of locating negative qualities inside the concept of the cute, these portmanteau words emphasize the gap between *kawaii* and the added quality in order to create fresh opportunities to feel *kawaii* affect, expanding the field of cuteness aesthetics.“

³³ On the other hand the embodiment into a different skin color can mitigate racial bias as the measurements before the virtual embodiment and after showed in Virtual ownership illusion of. Virtual bodies by Peck et al (2013).

³⁴ See: Emotion AI (AFFECTIVA, 2022) announcing the humanization of the gap between human kind and machines. *Humanizing technology*. Affectiva. (2022, September 21). Retrieved January 2, 2023, from <https://www.affectiva.com/> e.g. detecting political orientation (KOSINSKI, 2021) or sexual orientation (KOSINSKI & WANG, 2018) via facial images, cf. Lewe (2021).

³⁵ Cf. Xing Wang (2020)'s book “investigates how the human body, society, and the cosmos are connected and assimilated in Ming physiognomy (xiangshu 相術), a fortune-telling technique that examines the human body in relation to the material world. The key questions (...) are: Why is the body believed to reveal a person's fortune in Ming physiognomy texts? How is this kind of knowledge or cosmology in the Ming texts related to broader intellectual and religious changes at that time?(...) Reading the body to tell fortunes is not a practice limited to China. One of the earliest known instances of body divination appears in early translations of Indian Buddhist texts in China. When Śākyamuni was born, his father, King Śuddhodana Gautama (the Buddha), summoned all the diviners and physiognomists in his kingdom to predict the future of his cherished prince. These physiognomists examined the body of the prince and were startled by the thirty-two sublime marks of his body. (...) His body

was evidence of these predictions. Each of the thirty-two sublime marks was the result of the accumulation of a kind of good karma in the Buddha's past lives. When the Buddha later told this story to his disciples, he said possessing these marks had been the case for all Buddhas." (WANG, 2020, p.1)

³⁶ Cf. Fricke (2012); Stivers & Sidnell (2005, p.2)

³⁷ Weigel (2015, pp.87) sees the entrance of Neuroscientific imaging (among other scientific fields Psychiatry biomedical imaging, neuroscience) to combine emotional facial categories with psychological measurements of brain activity with neuronal maps by fMRI imaging to control self-reports of test persons about their emotions in which while observing facial photographs in relation to ROI (Regions of interests) of beauty as an example of faciality research entering the era of Big Science cf. her example of Aharon et al (2001).

³⁸ CF. Ekman (1994); Darwin (1970); Ekman, Ellsworth, and Friesen (1972); Ekman (1980): First there were 7 (*disgust, sadness, happiness, fear, anger, contempt, surprise*) now Ekman excluded "surprise" as discrete emotion that should be able to be singled out by facial expression detection. Cf.: Ekman & Cordaro, 2011.

³⁹ Face perception is a highly developed visual skill in humans, and it is mediated by a distributed neural system in the brain that is comprised of multiple, bilateral regions. Static and dynamic facial expressions are processed by the ventral and dorsal face neural pathway, respectively (Bernstein and Yovel 2015).

⁴⁰ "Through avatar embodiment in Virtual Reality (VR) we can achieve the illusion that an avatar is substituting our body: the avatar moves as we move and we see it from a first person perspective. However, self-identification, the process of identifying a representation as being oneself, poses new challenges because a key determinant is that we see and have agency in our own face." Mar Gonzalez-Franco et al 2020

⁴¹ de Vignemont (2010:1) rightly refers to the problematic conceptual issues of how to conceive *body-action relations* in the *body schema* in the recent scientific literature due to the "variety of ways we have of relating to our bodies by senses and schematic mediations (e.g., through touch, vision, proprioception, motor behavior, semantic understanding, emotional affect, etc.) and the variety of disorders of bodily awareness". In a recent account (de Vignemont et al 2021:16) the subdifferentiation of the body schema is summarized to a) their temporal scale (short-term versus long-term) b) their spatial scale (local versus global) c) their evolutionary role (for exploratory versus defensive actions) d) their motor contribution (for planning versus control) e) the weight given to their sensory inputs (vision versus somatosensation) f) their malleability (relatively rigid versus highly plastic).

⁴² In a Christological reading we can distinguish *monoprosopic* concept that advocates that God has only one person (mask and face); *duoprosopic* concept advocates that God has two persons (masks or faces) such as Father and Son; *triprosopic* God in a triadic mask/face personhood (Father, Son and holy spirit), or in a Peircian reading of Kant we could say that in the last case god is given in *hypotyposis* (KANT KU §59,B225, cf GERNER, 2011, pp. 311-314) of three persona or a triadic symbolic sign (Peirce).

⁴³ Lavater's position on physiognomy was and still is highly problematic and fallible. For one thing, it was based on the unproven assumption that there would be a direct correlation between a person's physical appearance and their character traits. This assumption has been largely rejected by modern science, which has shown that there is no reliable way to predict a person's character traits based on their physical appearance alone. In addition, Lavater's work was heavily influenced by cultural and societal stereotypes and prejudices. He believed, for example, that people with certain physical features were more likely to exhibit certain character traits, and that these traits were inherent and unchanging. This belief was based on the notion that there were inherent differences between different groups of people, which was used to justify discrimination and oppression. Today, Lavater's ideas about physiognomy are largely considered to be outdated and unscientific. While it is true that certain physical features can be indicative of certain genetic or inherited traits, these traits are not necessarily predictive of a person's character or personality. In fact, modern research has shown that a person's character traits are shaped by a wide range of factors, including their upbringing, their environment, and their experiences, and that it is impossible to accurately predict a person's character based on their physical appearance alone.

⁴⁴ Faception (2021) in a similar vein proposes to predict who is who, e.g. a service to detect facial personality analytics technology even in its highly doubtful categories aims at spotting paedophiles or even terrorists e.g. on airports by AI facial recognition and automatic behavior interpretation. Facial recognition technology, such as the technology offered by Faception, is designed to analyze a person's facial features and use machine learning algorithms to interpret character traits or other personal characteristics. This type of technology has raised concerns about its accuracy and potential for bias, as well as its potential impact on privacy and civil liberties.

⁴⁵ „If physiognomy becomes what Lavater expects it to become, children will be hanged before they have committed the deeds deserving of the gallows; a new kind of confirmation will thus be performed each year, a physiognomical *auto de fe*. [521]“ Lichtenberg (2012, p.84).

⁴⁶ Weigel (2013, pp.7-12).

⁴⁷ „Die Geschichte der Vorrangstellung des Gesichts als verdichtetes Bild des Humanum lässt sich als eine Geschichte des Subjekts resümieren. Es existiert, so lehrt uns dieser Blick, das Bedürfnis in unserer Kultur, „Gesicht zu produzieren“.“ (Körte & Weiss, 2017, p.9). Thus for Deleuze the quest of his becoming other as becoming animal includes fundamentally the absent dead eye, or the faceless thing.

⁴⁸ The dichotomic conception of the semiotic body of Schmidt (2003:7-17) being either a medium of expression a *Zeichen-im-Leib* or a medium on which signs are externally allocated such as make-up or tattoo a *Zeichen-am-Leib* does seem to attribute to the skin a fundamental differentiating function, although the skin itself can be interpreted in complex signifying notions, as medium of the sign its interpretant or as its object, thus I stick with the general triadic sign conception of C.S. Peirce that does not specifically applies a body semiotic to a concrete token, but has always to negotiate between tone, type, token, sign-object, sign-interpretant and signifying element of the sign and its tenfold 1903 triadic typology of qualities (*qualisign, icon, rheme*), existential facts or “natural propositions” (Stjernfelt 2014) (*sinsign, index, dicent*) and conventions (the legisign, the symbol, and the delome), as well as the image-diagram-metaphor (cf. Stjernfelt 2007) *trichotomy*. cf. Stjernfelt (2022, pp.131-161).

⁴⁹ “Wenigstens in drei verschiedenen Kontexten ist es üblich, das Gesicht manchmal nicht zu zeigen, sondern zu verbergen: in Spiel und Fest, Kampf und Krieg, sowie vor Gericht.” Macho (2017, p.167).

⁵⁰ Physiognomy is the practice of using facial features and physical characteristics to judge a person’s mental abilities, character, and emotional attitudes. The idea behind physiognomy is that a person’s facial features and physical characteristics can reveal insights into their personality, intelligence, and emotional state. This can include factors such as the *shape of the face, the size and positioning of the eyes, nose, and mouth, the texture and color of the skin, and other physical characteristics*. However, the validity of physiognomy as a scientific or psychological method is highly questionable. Many studies have shown that there is little to no correlation between a person’s facial features and their mental abilities, character, or emotional state. In fact, most experts now consider physiognomy to be a pseudoscience, with no scientific basis or evidence to support its claims. We will see the fallible notion of the facial schema when considering the problematic issues of Paul Ekman’s supposedly universal schema of faciality interpretation *FACS* (Facial Action Coding System) and the a-semiotic and underdetermined or difficult/impossible to be programmed social face-to-face encounters (Emmanuel Levinas) as complex social system events.

⁵¹ In the scientific psychological research of Alexander Todorov and Janine Willis(2006), the necessity of “impression” as *quick judgment of the face* of a stranger is seen as a human capacity in a modern condition in which humans live not any more together in smaller groups that are all known to them, but in larger social constellations such as cities and in which the quick assessment of the face (and an overview appearance of the other becomes tantamount when referring to basic judgments on values such as *attractiveness, likeability, trustworthiness, competence, and aggressiveness* of the other face. Besides being a cautionary tale to mistrust such overall quick judgments in taking the exterior physiognomic appearance as an indicator of the fixed traits of others in the highly problematic and fallible tradition of Lavater’s physiognomy promise to relate *facial landmarks characteristics* with a person’s character and personality the authors note:” As minimal an exposure time as a tenth of a second is sufficient for people to make a specific trait inference from facial appearance. Additional exposure time increases confidence in judgments and allows for more differentiated trait impressions. However, the judgments are already anchored on the initial inference. Coupled with findings suggesting that inferences from facial appearance may be uncontrollable (...), our findings suggest that trait inferences from facial appearance can be characterized as fast, intuitive, System 1 processes. Lavater (1772/1880) might have been right about one thing: “Whether they are or are not sensible of it, all men [and women] are daily influenced by physiognomy” (p. 9).” Willis & Todorov (2006, p.597).

⁵² Roland Meyer (2021, pp. 60-61) interprets the uncountable images of the website “thispersondoesnotexist” in a non-reflected adaptation of Deleuze’s formulation “bodies without organs” as such:” The same technologies that revolutionized facial recognition are now being used to produce more and more digital faces without bodies. In the future, we can expect to see more and more images on the web that say “This person does not exist”.. If we can call these faciality productions according the subtitle of Meyer’s book from 2021 „bodyless masks“ seems questionable, as the relation towards the humans that use for instance the avatars as representations of their identity has to be clarified first as well as the theater, action and ritual-oriented term of the mask is vague in Meyer’s account.

⁵³ Seymour, Mike, and tedxsydneysalon. “What Happens When Technology Has a Human Face? | Mike Seymour|Tedxsydneysalon.” YouTube. YouTube, December 20, 2018. <https://www.youtube.com/watch?v=FPm3ZDKnS6A&t=1s>.