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THE EMBODIED FLUENCY MODEL: UNCANNINESS BETWEEN THE MERE-EXPOSURE EFFECT AND ANGST

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ABSTRACT

Human beings can be said to naturally seek familiarity in their environment for survival purposes, and this can explain why the mere-exposure effect, where being merely exposed to external factors in our environment, can increase preference for these factors. Familiarity in this sense can thus be framed as important for affect and preference formation and considered built upon both the subjective process of fluency and the objects of experience being processed. The feeling of uncanniness is often considered the opposite of familiarity, yet within its semantic vicinity. By considering the term 'uncanny' as having a double meaning linked to both familiarity and unfamiliarity, however, this paper will show how this ambiguity allows for a semantic relatedness of this concept to process fluency rather than familiarity. This connection will in turn be shown to have ramifications for affect through the proposal of a fourth model of process fluency: The Embodied Fluency Model. Through consideration of Mori's shinkawan, Freud's notion of the uncanny, and Heidegger's connection between uncanniness and Angst, an exploration into conceiving how fluency and uncanniness share attributes that allow for a different view on affect is propounded.

Keywords: *Angst; embodiment; familiarity; fluency; mere-exposure effect; uncanny;*

INTRODUCTION

In order to understand the psychological processes of familiarization and process fluency, and if we are to see how the latter is more suited for synonymity with uncanniness than the former, it is important to explore the background of the mere-exposure effect (henceforth: MEE). This effect can be said to be a concept lying at the heart of preference formation and affect for human experience. As a consequence of this exploration, this paper will first outline the components involved in the MEE to understand how fluency and familiarity relate to analytic and holistic experiences of affect, respectively. Secondly, it will consider the semantic relationship between uncanniness and fluency through consideration of familiarity's limitations as a concept to synonymize with the experience of uncanniness. Thirdly, it will investigate the subjectivity involved in experience to elucidate the MEE as allowing for a semantic correspondence between fluency and uncanniness, with the proposal of an additional model of fluency termed the Embodied Fluency Model. Finally, it will inform of the relationship between uncanniness and fluency as one that leads to an interconnection with the embodiment of experience, shown in the form of Heidegger's conception of Angst.

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Throughout the history of psychological literature, the mere exposure of a stimulus that is repeated has been considered sufficient for the increase of preference for such a stimulus; an effect that is found in an array of contexts for a plethora of stimuli and displayed through the use of different procedures among both mature or prenatal animals and humans (Zajonc 2001, 224). Gewei and van Raaij (1997) define the MEE as: "the formation of a positive affective reaction (PAR) to repeated or single exposure to a stimulus, even in the absence of awareness […] it indicates that communication effects go beyond 'explicit memory', measured with the traditional measures of (aided) recall and recognition (Gewei & van Raaij 1997, 629)." Reber, Schwarz and Winkielman (2004) further the definition by stating that: "Mere exposure effects have been obtained with a variety of stimuli (faces, ideographs, words, and melodies) and a variety of measures (judgments of preference, behavioral choices, and physiological responses), indicating the robustness of the phenomenon (Reber, Schwarz and Winkielman 2004, 370)."

The MEE manifests itself in both naturalistic and laboratory settings allowing it to be considered a reliable phenomenon involving stimuli exposures that are unreinforced and increase affect toward auditory, taste and visual stimuli; however, it is important to note that meaningful, social, and non-representational stimuli can produce the effects of affective exposure despite the fact that such stimuli do not need to be explicitly recognized to produce the exposure effect (Bornstein, 1990, 791). The MEE thus involves a precognitive mechanism that not only considers it as symbiotic with the amygdala and thus affective emotion, but also enables caution for encounters with new novel stimuli that is potentially harmful; a caution that decreases after increased exposure and thus increased trust through expectation to counter the fear of the unknown (Reber, et al., 2004, 371).

To understand how the MEE functions, we can consider that when we are face-to-face with another human being for example, a formation of a bond between ourselves and the other is initiated which is composed of both top-down (prior experience dependent) and bottom-up (sense dependent) processing, as rapid determinations within 100 milliseconds occur to make judgments on trustworthiness via face, attire, decór and arrangement (Wampold 2015, 270). It is in between these processes, we will see, that the concept of uncanniness becomes relevant.

When we consider its meaning in relation to the MEE, we can consider that an experience is described as uncanny when expectations are challenged by exposure to certain stimuli found within that experience. If we were to realize for example that the face we had encountered of another person is actually that of an artificial human rather than a real human being's, we would consider that the processes involved in the MEE can be deceptive and the process fluency on which they depend can be questioned. The MEE is thus important for understanding the processes of determining what is reliable in human experience, but it is also indefinite because the changes in emotion or affect that are paired with repeated exposure to stimuli are not only dependent on subjective factors like familiarity's subjective impressions, but linearly on an objective history of exposure (Zajonc 2001, 224).

One of the aims of this paper is to suspend such subjective/objective dichotomies in relation to experience, by exploring the history of the MEE in relation to familiarity, fluency and uncanniness. We can see that the MEE is relevant contemporarily in everyday life such as marketing and academia, but its importance can be traced to the psychological exploration of preference increase from unreinforced stimulus repetition, particularly found in the seminal work on the topic by Titchener (1915) and Zajonc's (1968) renewed exposure of this

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work (Carr et al. 2007, 788). The MEE as a concept has thus evolved and has led to psychological ideas, such as recognition being considered based on distinct memory systems (Willems, Dedonder, & Van der Linden 2009, 191). Memory that is involved with recognition in this respect is taken as a dual process, including both recollection (a process that is conscious and controlled) and familiarity (an automatic unconscious process) (Gewei & van Raaij 1997, 633). What can be taken from this notion of a dual process is that no conscious effects occur in conjunction with increased familiarity, and so preference for and liking of experience and its relevant stimuli is to be said to increase unconsciously. From this it can be gathered that the MEE can be framed as functioning in the domain of familiarity or in relation to it, and this functioning is based on an unconscious process (Gewei & van Raaij 1997, 644). It must also be the case, however, that the MEE is dependent on the process fluency of experience (the ease of processing experience) which does not necessarily require memory function, since familiarity is built upon such fluency (Whittlesea & Price 2001, 234). It is this more uncertain relationship, between the MEE and fluency, that the concept of uncanniness is able to provide relevance and insight into the role of the MEE and affect formation within the human experience of reality.

1. ANALYTIC & HOLISTIC EXPERIENCE WITHIN THE MEE

To understand how preferences function within human experience, we now see the importance of distinguishing between memory systems, especially between recollection and familiarity as a dichotomy within the faculty of recognition. Since recognition involves analytical processing, it can be considered to involve recollections that can be interpreted as 'pure conscious processes' (Gewei & van Raaij 1997, 633). Familiarizations on the other hand can thus be interpreted as unconscious processes indirectly encountered, but still lying in the domain of analytical experience. Zajonc informs that such unconscious familiarity can be perceived as positive when: "the affect generated by repetition of exposures is diffuse, and non-specific, then any stimulus, if it follows a benign repetition experience, would become infused with positive affect (Zajonc 2001, 226)." Affective processes in this light thus require less resources and are more automatic than requiring conscious efforts (Fang, Singh, & Ahluwalia 2007, 102).

We have seen above that familiarity is based on fluency, but it can be defined apart from it, as fluency is based on non-analytic processing while familiarity can be associated with both fluency and recognition (Whittlesea & Price 2001, 236). Non-analytic processing involves experiencing a feeling of fluency that is global (Willems et al., 2009, 189). Such globality allows for an experience of the quality of the performance of processing itself; hence it is required for liking and preference judgments (Whittlesea & Price 2001, 236). Analytical processing, on the other hand, provides for the recognition of parts and figures in tandem with familiarity processing. Recognition judgments and access to information in analytic terms is linked to processing critical features, in turn categorizing analytic processing for recognition as a possible hindrance to the global fluency experience of processing items as wholes; a hindrance that provokes a lack of a 'familiarity feeling' for preference formation and affect (Whittlesea & Price 2001, 236). Adopting a non-analytic approach to processing experience involves perceiving stimuli in a manner that forms an 'impression' of processing fluency, as stimuli will have encoded within themselves global properties, alluding to the notion that process fluency can range in degrees (Whittlesea & Price 2001, 237). There are thus stages of processing experience which can contribute

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together to the experience of the easiness of perception (Reber et al., 2008, 374). It is this nature of process fluency that considers itself in degrees and with ranges of processes that we will see below provides such it with a character that can be considered having solid synonymity with uncanniness.

There are three models for the MEE that are relevant for contemporary psychology. Gewei and van Raaij inform them to be classified as: the model of opponent process, the model of the two-factor learning-satiation, and the model of arousal (Gewie & van Raaij 1997, 632). After decades of meta-analysis on empirical research, the second two-factor model, is best supported in recent times (Gewie & van Raaij 1997, 632). This model is conceptualized as involving an MEE via two independent factors operating simultaneously: stimulus habituation (increase affect from increased familiarity) and satiation (boredom from overexposure). Affective responding involves liking, attractiveness ratings, and capacity for pleasing (Bornstein, Kale & Cornell 1990, 791).

It has been known for researchers to hypothesize that some form of learning is underlying the MEE, with meta-analysis even further leading to the suggestion that implicit and explicit learning is able to mediate the MEE within experience; hence one of the benefits for its investigation (Bornstein et al., 1990, 799). Humans, when perceiving, interpret positive affects provoked by processing fluency as a response to targets which result in positive evaluations (Reber et al., 2008, 366). This paper aims to consider the importance of viewing fluency as free from positive and negative interpretations, in addition to any subjective and objective divisions. Alike the uncanniness that describes the experience of something that is 'uncanny', process fluency will be framed to be a neutral experience that overcomes dichotomies to conceptualize experience and more specifically, affect. Further understanding of the MEE will allow for a deeper insight into fluency and such neutrality, but also how uncanniness can be considered conceptually found between the realms of familiarity and fluency. This paper will vouch for the notion that uncanniness will lean more towards a semantic connection with fluency than familiarity, however. The MEE's earliest explanation from Titchener provided for the tautological proposition that we prefer familiar objects due to the enjoyment we receive recognizing them (Zajonc 2001, 224). This was contested by Wilson's 1979 notion that increased preference for an object is not dependent on individual subjective impressions or the familiarity of objects, but rather genuine objective taste (Zajonc 2001). Despite this objection from Wilson, it is scientifically proven that with exposure to stimuli, when taking place through mere exposure conditions, two possible inputs accompany judgment: the experience of fluency and the experience of affect; two important and perhaps imperative processes for the MEE, no matter which model it is based on (Fang, Singh, & Ahluwalia 2007, 102).

Research shows that there is a 'warm glow' when stimuli is familiar, due to a link between familiarity and positivity found at the core of the MEE (Carr et al, 2007, 789). Such levels of familiarity consider that positivity breeds familiarity and not contempt (as some research suggests) (Willems, et al., 2009, 185). We see under this interpretation that 'warm' is considered positive and denoting safety, but also that familiarity in this sense can be summed up as that which measures how well a stimulus links with all that is found in memory (Carr et al. 2007, 789). This shows the subjective and objective relationship inherent in the processes of familiarity, but also the positive and negative potentialities for familiarity. Such dichotomous potentialities are aimed to be phenomenologically overcome in the project, with a conception of fluency that transcends such dichotomies and shows an intimate

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relation with transitory uncanniness. Considering the relation between environment and the human mind, subjective contextual factors need to be considered able to change a setting's 'warm glow'; factors like mood, motivation and goals (Carr et al. 2007, 811). These contextual factors inform of the relevance of subjectivity within experience, as the repetition of exposure can be considered to involve a sense of implicit familiarity, leading the MEE to link with subjective senses (Carr et al. 2007, 788). Due to familiarity involving implicit and explicit familiarity, we can see that familiarity can be considered both an analytic conscious and holistic unconscious process, rather than only an unconscious process as considered above with Gewei & van Raaij 1997 in their contrast between recollection and familiarity as the processes that recognition consists of.

We will now see how this gap in the research literature on familiarity allows holistic experience to overcome dichotomies between subjectivity and objectivity, despite the fact that familiarity as an experience in terms of preference formation, might involve a dichotomy between both analytical and holistic experience. It is such holism that we will see respects the importance of embodiment for affect formation and how this reveals an intimacy between fluency and uncanniness as primordial psychological processes.

2. HOLISTIC OVERCOMING OF THE SUBJECT AND OBJECT DIVIDE

Recollection is known psychologically to prevent the MEE because it involves recollecting what can be termed stimuli recognitions, and this involves an analytical process lacking the holistic or globality required for the affect found within the MEE (Gewei & van Raaij 1997, 633). Analytical (informational) views of the environment relate to memory because recognition as a re-collector (of experiences) is a meta-cognitive process involving second order thoughts on psychological processing, framing recognition in this recollecting sense (in contrast to a version of recognition that is compatible with familiarity) as a conscious counter-control which scrutinizes, analyzes, and has the potential to counteract or restrict affect (Gewei & van Raaij 1997, 633).

The explicit memory involved in the conscious counter-control of recognition's recollecting capabilities considers that such an involvement of second order conscious recollection hinders the MEE (Gewei & van Raaij 1997, 634). Recognition that is compatible with familiarity rather than recollection, however, is able to extract experiences from recollection in order to suspend them within process fluency, having the potential to allow familiarity to act analytically by provoking recognition. It is argued that the uncanniness of an experience departs from any relatedness to familiarity in this sense, as uncanniness does not have the potential for analytical views on experience as familiarity does.

This allows uncanniness to sit closer to the camp of holistic views of experience where process fluency also resides. Figure 1 below serves as a conceptual map of the literature on the MEE thus far, allowing for a view on where fluency and uncanniness can be found within the conceptual world of affect. Uncanniness will be shown below to further distance itself from familiarity.

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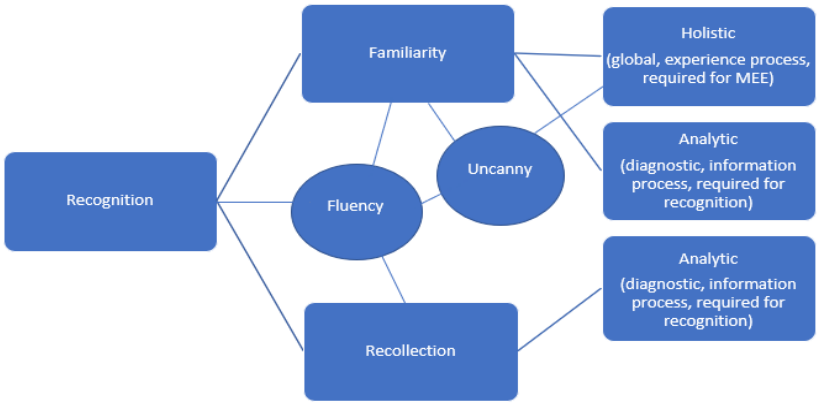
Figure 1:



Considering familiarity as being unconscious, conscious, holistic, and analytic, coupled with the fact that affect formation can be considered to occur only in processes that are unconscious, we can understand familiarity as not being the most suited category to align with process fluency nor with uncanniness. We will now see the role of conscious and unconscious processes for affect formation to strengthen uncanniness' position as aligning with fluency, in order to substitute familiarity's dominance as a descriptor for the uncanny, but also to allow process fluency to develop a more unique conception compatible with embodiment.

Overexposure to objects in experience can help to maintain the consideration of familiarity and recollection as two distinct processes, but we can state that low levels of familiarity can lead to preference and liking affect via the MEE. Novel and new experiences are also attractive therefore, so long as they are not averse and function in tandem with habituation as a feeling of lessened rather than greater threats from the environment (Gewei & van Raaij 1997, 634). The MEE demonstrates that exposure to a stimulus that is cognitively limited (not within awareness) has an influence on affective reactions without one having the capacity to know consciously that such exposure occurred (thus subliminally) (Whittlesea & Price 2001, 235). Incidental repeated exposure thus results in an increase of perceptual fluency (ease of stimuli perception and processing) without recognition increase, as increased fluency in this sense is paired with positive evaluations of the objects of experience (Fang, Singh, & Ahluwalia 2007, 100). The experience of the fluency itself, however, is the experience that this paper argues to be akin to the experience of uncanniness, as both involve neutral evaluations of experience that are not memory dependent and are thus not information-based analysis.

The MEE and average blending, as classic determinants of preference, consider that the process of increasing preference (affect) involves an enhancement of familiarity, and so when change eventually becomes familiar itself, the objects of change and the process of change will eventually be preferred (Carr et al 2007, 787). Familiarity being defined in this case as the measure of how effectively a stimulus matches everything else existing in memory, thus in accordance with a potential global match; an analytic process (Carr et al 2007, 788). Affect can thus be derived from an experience via two possible scenarios, the first being this analytical matching via familiarity based on mere exposure to an environment.

This matching proceeds without any conscious recognition or memory of the procedure, which leads to subliminal affect formation as a result of the process of attempting to match experience with a memory although matching a memory does not necessarily occur

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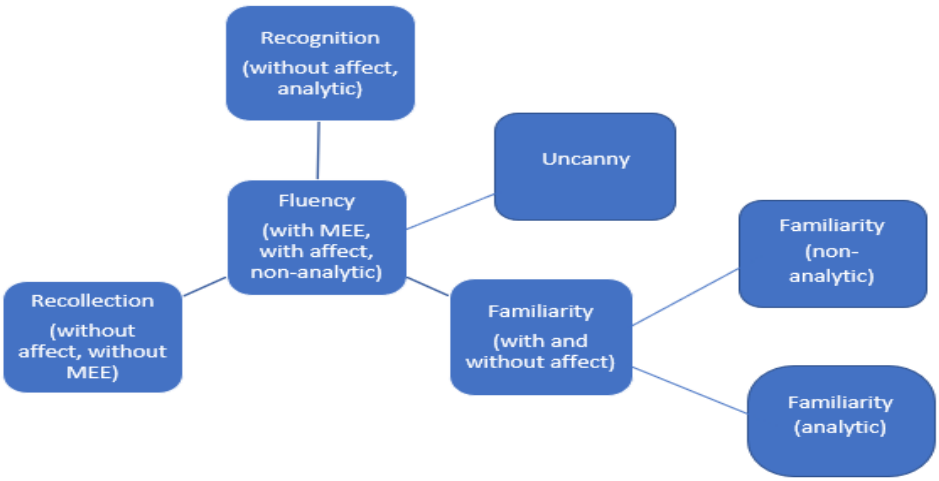
(Gewei & van Raaij 1997, 630). It is important to highlight that this analytical matching procedure by familiarity can be said to require memory, for if no memory is matched in the end, then how are we to know that the procedure actually took place. This reinforces the notion that familiarity depends on memory, which is important for stressing in order to maintain its contrast with fluency, which does not base itself on memories.

Second, affect can derive from the MEE's processing fluency, which is a non-analytical process and refers to easy processing of experience that, in opposition to the first notion that affect can result without any conscious recognition or memory, does require pre-exposure, conscious recognition, and memory over time (Willems et al., 2009, 185). Affect from mere exposure to stimuli can thus derive subliminally from an experience of the analytical processing of memory matching or holistically from the easiness of consciously recognizing familiar objects of experience; a process that cannot be distinguished from the objects themselves.

The MEE can thus be considered linked with familiarity and fluency, however, the subliminal functioning of the MEE in terms of familiarization, counters the notion that heuristic and holistic attributes of experience found in the process of fluency are solely responsible for affect and in turn preference. It is within this 'gray area' between fluency and familiarity that the concept of uncanniness is helpful for understanding preference formation within the confines of experience. We have seen that the ambiguity and contingent nature of uncanniness is appropriately linked to the nature of fluency in experience, but we also find the synonymity between uncanniness and familiarity can arise due to the latter's affinity with both analytical and holistic experiences, which makes it contingent in nature.

We will now move on to different views on uncanniness to grasp its role within the MEE and affect formation. Figure 2 below informs how uncanniness can be understood to distance itself conceptually from familiarity, as uncanniness is not necessarily understood as a conscious or unconscious state as familiarity is. Uncanniness will be shown to collate more with fluency in order to assist in its understanding as more of a process than a fixed state. Figure 1 above informed of how uncanniness and familiarity often share conceptually linkages, and this is understandable, however the literature, through informing of familiarity's ambiguities as a concept within the MEE and affect formation, provoked ideas on how fluency appears to be more appropriate for describing the experience of uncanniness.

Figure 2:



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3. UNCANNINESS IN RELATION TO PERCEPTUAL DISCRIMINATION

The ambiguity of the term uncanniness can be found in its relation to the concept: *shinwakan*. Mori, the conceptualizer of the 'Uncanny Valley Hypothesis' (henceforth: UVH), considered *shinwakan* as the term that indicates the experience that characterizes this hypothesis: affective experience in terms of this neologism aims to describe the negative and positive characteristics of affective experience activated by objects in reality that are considered humanlike (Cheetham, Suter, & Jancke 2014, 6). In relation to the interconnections between *shinwakan*, familiarity and uncanniness, Cheetham et al state that *shinwakan* and familiarity are the closest in synonymity than other options, stating: "There have been various renderings of *shinwakan's* meaning in uncanny-related research, including comfort level, familiarity, eeriness, pleasantness, likability, empathy and affinity [...] Familiarity (as a) rendering of *shinwakan* has been used frequently in research, it is most often used to denote the affective dimension of the UVH (Cheetham et al., 2014, 6)."

The synonymity between uncanniness and familiarity, provoked through examination of *shinwakan*, is a synonymity that this paper considers should be challenged. Upon etymological examination of uncanniness, or the term 'uncanny', we notice its negative prefix, '-un', and yet 'familiarity' and its antonym 'unfamiliarity' can both be said to tend to denote 'the uncanny' without consideration of the prefix-free term 'canny'. This latter term in the English language can signify astuteness and prudence (Madeira & Leal 2019, 275). Here we have an example that allows us to see how 'the uncanny' can aim to signify both familiarity and unfamiliarity, much like how the word 'sanction' can denote both the verbs 'to prohibit' and 'to condone'. Such semantic ambiguity found with the term 'uncanny' considers that two words are required to signify the same thing, yet possibly to different degrees. It is this ambiguity and dependence on degrees which has led this paper to consider why fluency instead of familiarity is a suitable term to connote uncanniness.

Process fluency can be said to be scientifically measured or subjectively explained by degrees. Uncanniness also appears to function in this manner and this is perhaps one reason as to why the term 'canny', without the negative prefix '-un', is rarely put to use in the English language verbally or textually. To carry on with the notion of applying synonymity between fluency and uncanniness, it is important to consider how affect functions in human experience in terms of degrees. Such functioning requires consideration of how information is or is not processed in experience. When affect from experience is interpreted as diagnostic, as it is with judgments of preference, it is probable it will be used as a decision-making input through definitive judgements, leading affect in this case to be treated as information and crucial for the interpretation of other inputs like fluency experience; however, when affect is not processed diagnostically, it is unlikely that it will be used as an informative decision-making input and is thus valued in itself indefinitely (Fang, Singh, & Ahluwalia 2007, 102). Affect therefore, when treated as information derived from analytical diagnostic means, is thus used instrumentally for input interpretation which is not measured by degrees, whereas affect, when interpreted as intrinsic as an end in itself via fluency, can be measured in degrees.

We can see how diagnosis can prohibit the positive affect of an experience that is uncanny, in the example of a prosthetic hand. In Mori, he informs that: "One might say that the prosthetic hand has achieved a degree of resemblance to the human form, perhaps on par with false teeth. However, when we realize the hand, which at first sight looked real, is in fact artificial, we experience an eerie sensation. For example, we could be startled during a

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handshake by its limp boneless grip together with its texture and coldness. When this happens, we lose our sense of affinity, and the hand becomes uncanny (Mori, 1970, 33–35).” The realization of the hand’s falseness involves diagnostic affect as the hand becomes informational in terms of determining if it is real or not through perceptual discrimination, which requires a ‘Yes/No response’, rather than via degrees. The hand is not taken as a hand in itself, but rather is analyzed through a recollecting recognition with past experiences of hands. As a result of recollection rather than non-analytical familiarity, process fluency is interrupted, which in turn activates the uncanniness of the experience. It is this activation that allows us to see the relation between the uncanny and fluency, as without fluency and its potential disruptions, the uncanny feeling of the prosthetic hand for example, would not arise, as only analytical ‘Yes/No responses’ in terms of whether or not the hand is real would be required.

It is perhaps the intimate semantic linkage between the uncanny and familiarity (which can be analytic or holistic) that brings forth possible errors within the UVH, as there still remains the unresolved curiosity as to why and how increased perceptual discrimination which is dependent on analysis and derives from disruptions of fluency, can lead to an increased positive affect (Cheetham et al., 2014, 12). Considering the uncanny as more synonymous with fluency than familiarity can in turn allow for new views on the experience of uncanniness and its relations with the MEE and affect. We have seen above that affect derived from experience that is not analytically diagnostic results in the generation of other metacognitions to interpret fluency experience which are not informational nor analytical, but holistic (Fang et al., 2007, 102). Fluency, as a heuristic tool to judge prior occurrences of experience of stimuli, is experience’s source of familiarity, which means that it is more psychologically primordial than familiarity, but also that increasing one’s liking of something experienced in the present occurs without necessarily provoking familiarity strictly based on analytical recognition; hence we are led to the notion that non-analytic global experience is linked to pleasantness (Whittlesea & Price 2001, 234). Considering the neutrality of fluency, however, such heuristics do not consequentially lead to ‘liking’ or pleasantness as a strictly positive affect, rather, we will see below how fluency can serve as an uncanny primordial feeling in the form of Angst that respects the neutrality of fluency but also uncanniness as a stand-alone category within the process of affect-formation.

The connection between preferences and the experience of the uncanny can be said to be linked in a heuristic manner in which the experience of uncanniness is one that relates to process rather than a temporarily fixed notion of experiencing something as familiar or unfamiliar. The ambiguity of both the experience of fluency and the uncanny highlights their heuristic natures and can be found in moments when perceptual discrimination, where analysis of objects in experience, increases. Considering such moments as ‘fluency difficulties’, Cheetham, Suter, & Jancke (2014) inform of the example that: “Ratings of familiarity show that faces associated with greatest category ambiguity do not show an uncanny-like effect [...] greater PD (perceptual discrimination) difficulty is associated with more positively rather than negatively valenced experience. This challenges the key idea behind the UVH. This effect is strongest for ambiguous faces, suggesting that this effect is more consistent with the metaphor ‘happy valley’ and, correspondingly, the fluency amplification effect (Cheetham et al., 2014, 13).” This obviously interprets the uncanniness of the UVH as having a negative connotation, as uncanniness appears to relate to negative valence, much like how fluency often takes on a positive connotation in terms of easiness of

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experience. Linking fluency to uncanniness, however, allows such semantic dichotomies to be overcome, as it involves linking them both to holistic experience that we can consider neutral and beyond 'yes/no' discriminations that are found within diagnostic analyses such as in recollection and familiarity's memory-matching.

4. A FOURTH MODEL OF PROCESS FLUENCY

In countering the UVH, Cheetham, Suter, & Jancke (2014) consider that the fluency involved in the analysis of objects of experience such as a prosthetic hand, would involve encountering perceptual discriminatory difficulties that amplify beyond that particular experience and continue to have an effect on subsequent experiences (Cheetham, et al., 2014). This does not cohere with the original UVH of Mori, which would consider such discrimination as leading to distaste; hence the notion of the 'happy valley' rather than the 'uncanny valley', as there is a warmness or positive affect from the discrimination process itself that possibly extends to other subsequent experiences (Cheetham, et al., 2014). Such meta-experiences of processes (i.e. fluency and uncanniness) can be considered separate experiences from the objects or events experienced themselves. We will now see how mere-exposure to objects of experience influences affect and preference formation and what role fluency has in this process as a process itself that can now be linked to the experience of the uncanny. A fourth model of fluency will be proposed as a result of this potent link between fluency and the uncanny in order to respect them as individual yet compatible processes.

The MEE has been seen from above to be based on fluency and familiarity, and we have been elucidating the synonymity between fluency and the uncanny for not only semantic reasons, but for reasons that can inform scientific direction and how we consider the function of aesthetics when it comes to holistic experiences found in the processes of fluency and uncanniness. To further this direction we will see how the MEE's functioning can lead to a model of fluency that embraces uncanniness through the notion of embodiment in Angst.

Fluency can be defined as the ease of information processing, in turn explaining the MEE as either A) a cognition based perceptual misattribution (henceforth: PF/M) or B) an affect-based model of hedonic fluency (henceforth: HFM). Such conceptions are only possible when the MEE is likened to repeated exposure resulting in an enhancement of liking for neutral stimuli. We have seen that the process of fluency itself can influence liking or in other words, the human affective state (Fang et al., 2007, 97). The MEE in terms of the latter, via hedonic fluency, considers negative evaluations of unfamiliar or novel stimuli as relating to cognitive difficulties that extract information required for efficient processing. Such difficulties promote the notion that alludes to the UVH assumption on perceptual discrimination, that through diagnostics we arrive at uncanniness and a sense of disgusted familiarity (Cheetham, et al., 2014, 12).

The notion that processing information from experience via discriminatory diagnostics leads to preferences, aligns with another fluency model mentioned above, that of C) the Fluency Amplification Model. This model considers, apart from the other two models above (A) and B)), that fluency as a process increases affective reactions that stimuli evoke already, so that when humans experience increased fluency and thus less perceptual discrimination, they experience negative stimuli as more negative whilst increased perceptual discrimination difficulties lead to lesser negative ratings; hence we have C) as a model that counters the UVH's assumption that discrimination of perception leads to distaste (Cheetham, et al., 2014, 12).

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It can be considered that C) involves two steps for process fluency, as the process of fluency leads to a neutral activation of affect linkage. The first step involves a target in experience that leads to affective preference, while secondly the fluency process itself, whether or not the target is positive or negative, is experienced as amplifying affective reactions derived from such affective targets (Albrecht & Carbon, 2014). In the first two models A) and B), fluency can be described in terms of Winkielman (2006) who states: "positive reactions occur because fluency indicates error-free processing and successful recognition of a stimulus (Winkielman 2006, 800)". In the third ampliative model C), we have the indication that error processing leads to positive reactions, as fluency processes are activated as a result of such discrimination. Having linked the semantics between fluency and the uncanny, we wish to propose a fourth model that considers how affect functions in a manner that brings fluency into an embodied experience of uncanniness which can be characterized through Heidegger's notion of Angst, rather than a merely cognitive experience based on error or error-free processing fluency.

We have seen from above that fluency is precognitive, but also how in the ampliative fluency model (C), fluency can be based on neutrality rather than positive or negative affect. It is such precognition and neutrality that we will see allows for process fluency and the uncanny to expose their commonalities as psychological concepts within the notion of affect and Angst. Precognition can also be considered to be what allows for a consecutive step from C), to a model that respects the embodied aspect of experience, and which we call the Embodied Fluency Model.

Processing fluency is often assessed psychologically prior to stimulus identification that is cognitively certain (Reber et al., 2004, 371). The body, however, is often not associated in this process, but since fluency can be framed as a non-analytical process, purely cognitive explanations of the effects of fluency on judgements (evaluations) therefore are not the only manner for providing explanations on judgment. The experience of fluency itself and not just stimuli, generates affect which influences subsequent cognitions and interpretations of the experience of fluency, yet also that which is experienced (Fang et al., 2007, 102). The MEE can thus be considered an effect on increased liking of something experienced involving positive affective (preference) reactions (henceforth: PAR) of stimuli, yet simultaneously, the MEE can be the phenomenon observed (not the experience or stimuli itself), despite the fact the PAR is the factor underlying the cause of the MEE (Gewei & van Raaij 1997, 643). It is this transitory nature of processing fluency which is central to why it is more suitable for the 'the uncanny' to be linked to fluency over familiarity, as uncanniness and fluency can be considered in transit with the body over time whereas familiarity does not respect the context and contingent nature of experience, due to its discriminatory nature that considers objects of experience as familiar or not familiar.

Uncanniness connotes an experience of an object, situation, or event that is not necessarily certain, yet ambiguously familiar and unfamiliar. The feeling of the uncanny thus considers the second-order experience of experience itself, that of the experience of processing fluency; an experience that suspends familiarity, but also depends on bodily experience. We see how mere exposure itself can be degraded to the extent that a person may not even have conscious awareness of the exposure and yet activate affect for what is experienced. Such subliminal affect is how the exposure can be unconscious and yet still take effect whilst lacking cognitive or rational mediation, only requiring a bodily presence to be sufficient (Gewei & van Raaij 1997, 643). It might be the case then that the better a human

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being is oriented to their environment the less it is that changes to the impressions of anything uncanny within that environment is likely; however, Freud considered this notion of uncanniness as incomplete (Freud 1919, 221). Part in parcel for this incompleteness lies in the terminology of uncanniness and its relation to fluency, not only as Freud saw uncanniness as defined as both an emotion and an object of aesthetics leading to aesthetic emotions, but also how it is used in language (Howe 2010, 42). This is why an Embodied Fluency Model, which does not omit the bodily experience involved in the experience of the uncanny, is warranted to reconsider the role of uncanny fluency in affect.

5. ANGST AS A FORM OF EMBODIED FLUENCY

Freud pondered on the notion of categorizing the uncanny under the subject of aesthetics and thus under positive beautiful experiences. Due to Freud's uncanny not being clearly defined up until his 1919 work on the subject, it rather becomes synonymous with that which provokes fear, even in a grotesque sense, rather than in relation to any beauty (Freud 1919, 219). He however did not consider the uncanny to be the opposite of beauty, and thus did not relate it to that which is ugly nor disgusting, in turn countering the negative connotation of uncanniness above. Merely because the uncanny's semantic place does not necessarily belong under the umbrella of aesthetics, does not mean the uncanny is not worthy of analysis for Freud, as he states: "The uncanny is that class of the frightening which leads back to what is known of old and long familiar (Freud 1919, 220)." Freud aimed to show therefore how that which is familiar can become frightening and uncanny, as that which is uncanny is frightening due to being unknown and yet familiar at the same time; however, Freud did not insist that all novel experiences are frightening simply because they are not yet known to us; and so uncanniness does not equate with the unfamiliar in every case.[1] Freud's essay '*Das Unheimlich'* thus aimed to link the uncanny to anxiety and have the latter characterized as a form of uncanniness in order to maintain the former's neutrality (Madeira & Leal 2019, 277). Much like Heidegger's notion of Angst, Freud considered anxiety to arise from confrontations with ontological questions and existential insecurities, in turn serving to provoke questions on the purpose of life; however, Freud also recognized anxiety's links to the shifting nature of familiarity, which can serve as an allusion to process fluency's and uncanniness' bases on degrees rather than fixed states (Madeira & Leal 2019, 277).

We see then in Freud's conceptualization of the uncanny, room for its synonymity beyond familiarity or unfamiliarity, allowing fluency to be considered a strong candidate to fill this empty semantic void. Not only have we seen above that fluency allows familiarity to be built upon it, but that fluency relates to a more primordial experience and existence. Such primordiality can help in understanding the notion as to why Freud considered the uncanny to relate to what is old and longed for, which echoes the concepts of nostalgia, melancholy and saudade; a relation that the binary opposition between familiarity or unfamiliarity does not elucidate. Fluency on the other hand allows for a contingency of experience to arise, relating to that old and long feeling of the uncanny we see in Freud; a feeling that is heuristically embodied in its nature rather than analytical or diagnostic. In fluency, analytical determinations within experience are left unknown and instead felt, and so experiences can

[1] *Unheimlich* is the antonym of *heimlich* (homely) and *heimisch* (native), and so these latter two concepts can be semantically taken as also the antonyms of 'familiar' for Freud, Freud 1919, 220

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be both familiar and unfamiliar, or aesthetically speaking, ugly and beautiful synchronously at the same time.

The uncanny thus allows for a contingency of experience that is holistic in its 'sensing'. Heidegger also connects such uncanny feeling to the anxiety of Angst[2], stating: "In Angst one has an uncanny feeling. Here the peculiar indefiniteness of that which Dasein finds itself involved in with Angst initially finds expression: the nothing and nowhere. But uncanniness means at the same time not-being-at-home [...] Angst, on the other hand, fetches Dasein back out of its entangled absorption in the 'world'. Everyday familiarity collapses. Da-sein is individuated, but as being-in-the-world (Heidegger, 1927, 176)."

Fluency here links with the uncanny and Angst, in its bringing us back to a more primordial existence, as fluency is concerned more about our orientation to the world as a body and mind, not just via our cognitive appraisals. When we question our own experience of process fluency itself, an uncanniness arises as a result of such overcoming of the dichotomy between the subjectivity and objectivity of experience. The experience of fluency can be described by Heidegger therefore as having existential implications as: "Dasein stands primordially together with itself in uncanniness. Uncanniness brings this being face to face with its undisguised nullity, which belongs to the possibility of its ownmost potentiality of being (Heidegger, 1927, 264)." This in turn relates to the notion of Angst as serving the body and mind to work together for understanding how fluency, uncanniness, and affect function in tandem, in turn allowing for an Embodied Fluency Model to maintain relevance for the experience of affect formation.

Heidegger can be interpreted to take uncanniness as an entity on its own, just as fluency can be interpreted to be distinct from experience and the experiencer. Both fluency and the uncanny share this meta-cognitive function as an end in itself whereas recollection, which also bases itself on second-order experience, does not. Such a description of these concepts can lead to the notion that such second-order experiences of experience (the experience of the processes of experience) are more primordial than their first-order experiences (that which is experienced). Heidegger informs that through Angst we can consider human potential to be based on motivations that lead uncanniness and fluency to remind us of our lack of homeliness, or as we saw in Freud above, lack of belonging. How we cope with this is an embodied experience that asks where we are and how our fluency of experience relates to this notion of place. Such existential questioning considers the uncanniness of experience and is important for authentic existence, as Heidegger states that:

"Uncanniness reveals itself authentically in the fundamental attunement of Angst, and, as the most elemental disclosedness of thrown Dasein, it confronts being-in-the-world with the nothingness of the world about which it is anxious in the Angst about its ownmost potentiality of being [...] It is Dasein in its uncanniness, primordially thrown being-in-the world, as not at home, the naked 'that' in the nothingness of the world […] Uncanniness is the fundamental kind of being-in-the-world, although it is covered over in everydayness (Heidegger 1927, 255-258)."

The thrownness of Dasein and the Angst that is linked to this transitory existence, leads us to consider the process fluency of experience as uncanniness. Heidegger's conception of uncanniness as a primordial being in the world, allows us to relate it to

[2] Anxiety and Angst may not be entirely synonymous, especially in Heidegger's sense, however their related aspects are sufficient to consider Freud's anxiety and Heidegger's Angst as semantically close enough for the purposes of this paper

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fluency's primordiality prior to familiarity. The Angst we experience when encountering the uncanny, such as in the example of an interaction with a prosthetic limb above, involves an engagement with reality and experience that is not necessarily analytical for familiarity's sake of recognition, but questions the processing fluency of experience and existence. When that fluency as uncanniness is interrupted, it is then that discriminatory diagnostics come into play and analysis of experience in the form of familiarizations via recognitions take hold.

Rather than conceive of fluency as modelled on the three models A) – C) mentioned above, in which objects of experience or the experience of fluency itself as discriminatory or non-discriminatory, dictate affect, the Embodied Fluency Model proposes that the uncanny relationship we have with ourselves and the world is in a hermeneutical circle between one's body, one's subjective experience, and one's objects of experience; cohering with Fuchs circularity of embodied mindedness (Fuchs 2020). This Embodied Fluency model thus allows us to consider the uncanny as not an analytical recognition, but a holistic feeling that questions one's entire existence in its contingency rather than positive or negative interpretations of experience.

CONCLUSION

When we consider the notion that beauty is found in the objective and thus objectivity is responsible for preference derivation (Reber, 2008, 368), we would be omitting subjectivity. This might seem unfair, however, when figures, individual objects, and parts found within an environment on their own are deemed 'good' or 'likable' simply because there is less information to extract from them to maintain them as stimuli within perception, we can see that humans are responsible for their environment and how beautiful it is interpreted for them. There might be naturally inclined preferences for symmetry as a form of beauty since the times of Aristotle (Reber, et al., 2008, 368) where stimuli with less information are more pleasing by involving easier processing from increased fluency (Reber, et al., 2008, 369); however, creating an environment with these characteristics depends on human manipulation of the environment. Without the experience of the uncanniness of fluency, human preferences would be stagnant and our environment would not be rendered satisfactory to maintain our need for beauty, expectations, and preferences.

It is our human experience of Angst that allows us to witness our own vulnerability as an uncanny experience, and Angst has been shown to be connected to the lack of fluency within our experience. Fluency, and its accompanying experience therefore, have the capacity to expose us to primal experiences that are prior to discriminatory or diagnostic experience. When such analytical diagnostic discrimination is disrupted, it no doubt brings forth a form of Angst that is uncanny, but this disruption is not a destruction of fluency, rather we can now claim it to be a 'call to being human'.

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