

Subcategories of "Fringe Consciousness" and Their Related Nonconscious Contexts

Elisabeth Norman
Psychology Faculty
University of Bergen
Christiesgate 12
5015 Bergen
NORWAY

elisabeth.norman@psysp.uib.no

Copyright (c) Elisabeth Norman 2002

PSYCHE, 8(15), October 2002
<http://psyche.cs.monash.edu.au/v8/psyche-8-15-norman.html>

KEYWORDS: Consciousness, fringe, nonsensory experience, feeling-of-knowing, accessibility, nonconscious context.

COMMENTARY ON: Mangan, B. (2001). Sensation's Ghost: The Non-Sensory "Fringe" of Consciousness. *PSYCHE*, 7(18). <http://psyche.cs.monash.edu.au/v7/psyche-7-18-mangan.html>.

ABSTRACT: In Mangan's (2001) account of fringe consciousness there is a tension between the proposal that fringe feelings are often difficult to attend and evidence that detailed introspections of such feelings are sometimes possible. This tension might be resolved if we distinguish between two different components of attention. The ability to *direct attention to* fringe feelings is needed to fulfill fringe consciousness' functional role in the retrieval of previously nonconscious context information. The ability to *hold attention on* fringe feelings is needed to introspectively rate them. I propose that this ability to hold fringe feelings in focal attention varies, and that the "introspective accessibility" of a given feeling is negatively related to the accessibility of the nonconscious context to which it relates. Examples of fringe consciousness therefore differ along two dimensions: (a) on-line introspective accessibility of the fringe feeling and (b) potential conscious accessibility to previously nonconscious context information. These constitute two different dimensions along which it is possible to begin systematically exploring varieties of fringe experience.

1. Introduction

Mangan (2001) proposes the non-sensory "fringe" of consciousness as a distinct class of conscious experience with a unique functional involvement in a number of cognitive activities, including thought transitions and memory retrieval. His basic assumption is that feelings in fringe consciousness relate to nonconscious context information which is relevant to the current focus of awareness, but which cannot be brought into focus because of consciousness' limited capacity. The function of fringe consciousness is therefore to represent this information in a summarised form, which would "signal the availability of detailed unconscious information" and "mediate the retrieval of that information into consciousness" (Mangan, 2001, Section 7).

A number of questions about the relationship between nonconscious contexts and fringe feelings need to be put to empirical test if we are to determine whether fringe consciousness does indeed serve the functions outlined above: For example, can the same nonconscious context information give rise to different feelings and, if so, what determines the phenomenological quality of the resulting feeling? Alternatively, can the same feeling be based on different context information? In which situations does fringe consciousness help us access "nonconscious" material? Mangan's account represents a broad descriptive and conceptual approach to fringe consciousness, but currently lacks the level of detail and specificity required to operationalise fringe consciousness in a way which allows us to answer such questions.

In this commentary I shall take one step in this direction by attempting to clarify some distinctions between (a) subclasses of *fringe experience*, and (b) subclasses of *nonconscious context*, and will suggest possible relationships between the two. I shall also suggest how this distinction might help clarify the complex relationship between fringe consciousness and attention, to which I now turn.

2. The Relationship Between Attention and Fringe Consciousness: An Under-Explored Complexity in Mangan's Account of the Fringe

In Mangan's account of fringe consciousness, there appears to be a complex and varying relation between the fringe and the focus of attention. Although Mangan points to distinctions that begin to unpack this relationship, it remains largely unexplored in his analysis and requires further clarification.

Fringe consciousness is proposed as having a functional role in redirecting focal attention to the most relevant parts of a previously nonconscious context. To illustrate this retrieval function of fringe consciousness, Mangan introduces the "menu bar" analogy (Mangan, 1993, p. 98; Mangan, 2001, Section 5.1). Much like the "menu bar" on a computer screen, which represents the availability of large amounts of "off screen" information, fringe feelings represent large amounts of potentially available nonconscious context information. The retrieval of this information into consciousness requires an *attempt to*

direct one's attention to the fringe feeling, similar to the manner in which we move the computer cursor towards the menu bar to initiate retrieval of the desired "off screen" information.

At the same time, Mangan emphasises the near *lack of introspective access* to fringe feelings, which results from their elusive quality (Mangan, 2001, Section 2). "The *attempt* to grasp a fringe experience seems to obliterate it, with the immediate result that a new substantive content manifests in consciousness which *is* amenable to attentive inspection" (Mangan, 2001, Section 3.5). In other words, attempts to direct attention to fringe experience cause attention to be redirected to a new nucleus of consciousness surrounded by new fringe feelings. The resistance of fringe consciousness to being focally attended is, according to Mangan, a necessary consequence of fringe consciousness' retrieval function: If fringe experiences could be brought "unchanged into the focus of attention, the ability of the fringe to execute its retrieval function would be severely undercut" (Mangan, 2001, Section 5.1). This is because the function of fringe consciousness is to give access to the nonconscious context information represented by the fringe feeling, rather than to the fringe feeling itself.

So far it might seem as if fringe feelings are difficult to focally attend, because the very attempt to do so will always direct our attention away from the feeling and towards the information we are seeking from it. However, both phenomenological and empirical evidence presented by Mangan suggests that this is not always the case. Mangan seems to accept that under certain circumstances, it does indeed feel that we can hold our attention on fringe feelings, for example in the "Tip of the Tongue" (ToT) state, where one feels strongly that a searched-for item is potentially accessible although one is currently not able to retrieve it from memory (Brown & McNeill, 1966; Mangan, 1993; 2000; 2001). Here, the feeling of being close to the correct answer is open to introspection.

Examples of this kind, where fringe feelings can be attended and introspected upon, seem to present at least a superficial tension with Mangan's functional account of fringe consciousness' retrieval function. A closer look at Mangan's (2001) arguments suggests that a possible first step in clarifying this tension is to distinguish between the processes of *directing* versus *holding* attention.

In certain cases, the attempt to *direct* attention to fringe consciousness seems sufficient to elicit the retrieval of relevant nonconscious context information into conscious awareness. According to Mangan, this is the function of fringe consciousness: "The cognitive purpose of focusing on a vague experience in the fringe is not to make *that* experience a stable entity in attention, but to bring a far more articulated (informative) experience into focal inspection implied by the experience" (Mangan, 2001; Section 5.1). Returning to Mangan's own analogy, menu bars point to relevant information but "don't themselves occupy the center of the screen when we click them" (Mangan, 2001, Section 5.1). Similarly, fringe experiences can point to relevant information without themselves being attended.

However, in other cases it is possible to imagine that attention can be *held* on fringe feelings so that, in Mangan's terminology, such feelings become "a stable entity in attention". This might occur if the fringe fails to execute its retrieval function. To illustrate this, let us slightly reformulate the menu bar analogy. Imagine the situation where there is a short temporal gap between clicking the mouse and the disappearance of the menu bar. Under normal circumstances this time lag is so short as to be hardly noticed. However, if the processing capacity of the computer is temporarily overloaded, this time lag might become noticeable because it is prolonged. Similarly, although fringe feelings are mostly short-lived and quickly replaced by other feelings, one might imagine that fringe consciousness can be focally attended under circumstances where it is possible to introspectively capture one fringe before it changes into another.

Both phenomenological and experimental evidence, some of which is presented in the target article (Mangan, 2001), supports the assumption that fringe consciousness can under certain circumstances be held in focal attention. The "Tip of the Tongue" (ToT) state, described above, is subjectively experienced as a situation where it is possible to focus our attention on "Feelings of Imminence". A line of experimental evidence pointing in the same direction stems from the literature on the "Feeling of Knowing" (FoK) judgement, a commonly used example of fringe consciousness. Traditional FoK experiments use a Recall- Judge-Recognise (RJR) procedure (Hart, 1965) within a memory test situation. For example, participants are first presented with a number of to-be-recalled items for rehearsal. In a subsequent recall phase, the participant is required to recall each item upon the presentation of a memory cue. For any cue where the participant is not able to successfully retrieve the correct item, s/he is required to predict the likelihood of future recall or recognition for that item. These predictions are compared to subsequent recognition accuracy. These experiments usually involve learned word lists, as in the procedure outlined above, but may also employ general knowledge questions. FoKs are rated, on a verbal or written scale, using a forced-choice procedure. Alternatively, unrecalled items are rank-ordered with respect to one another on the basis of predicted likelihood of later recognition (Metcalf, 2000). Another FoK judgement is the "Rapid FoK judgement" within the "game show" experiment (Reder, 1987). Here, participants are presented with general knowledge questions and are instructed to estimate the likelihood of retrieving the correct answer *before* the retrieval attempt is initiated. A common finding from studies of FoK judgements is that FoK judgements do predict subsequent memory performance (Metcalf, 2000). In similar fashion, feelings of "knowing the correct answer" and "closeness to solution" predict performance on analytic problem solving tasks (Metcalf, 1986; 1987).

Of course, it is possible that contents of consciousness that are not focally attended can nevertheless be introspectively reported. For example, Mangan (2001) refers to the work of Rock and Gutman (1981) on awareness of preattentively processed components of a visual scene (e.g., the background redness of the sky). However, this is unlikely to be the case for FoK judgements. The FoK judgement requires that the subject *directs* attention to the information about which responses are to be made, and *holds* this information in focal attention for long enough to rate it.

First of all, depending on the required type of FoK rating, the subject must select which information should be incorporated in the FoK judgement (Widner & Smith, 1996); i.e., they must *direct* attention to the relevant feeling. In other words, introspective self-reports of this kind involve what Ericsson and Simon (1980), in their seminal analysis of categories of introspective report, refer to as "intermediate scanning or filtering" of information. According to the "verbal overshadowing" hypothesis (Fallshore & Schooler, 1995; Schooler & Engstler-Schooler, 1990), instructions to verbalise one's experience cause individuals to selectively attend relevant verbalisable information at the cost of other information, which suggests the role of selective attention in verbalisations of which FoK is an example.

Secondly, the rating of several alternatives on the basis of their relative difficulty, or the absolute rating of a fringe feeling on an n-alternative scale, is most likely too cognitively demanding to be performed without attending the feeling being rated. Stimulus-response mapping is after all a classic example of an attentionally controlled task, and there is little reason to suppose that an internally generated "stimulus", such as a fringe feeling, escapes this attentional bottleneck. The FoK judgement must therefore involve *holding* attention on the fringe feeling until the rating is made.

I suggest that the potential tension in Mangan's arguments between fringe consciousness being attendable versus unattendable points to the heterogeneity of experiences that could be classified as "fringe consciousness", rather than to the impossibility *per se* of holding attention on the fringe: Under certain circumstances, fringe feelings might resist focal attention because the act of directing attention to the feeling brings another content immediately into focus. Under other circumstances it might be possible to hold attention on the feeling itself. The distinction between *directing attention* towards fringe feelings versus *holding attention on* fringe feelings, can be used as a starting point for further explorations of the differences between these situations.

The next step is to identify the variables that influence the degree to which a given fringe feeling can be held in focal attention. I suggest that (a) subclasses of *fringe experience*, and (b) subclasses of *nonconscious context*, might be identified on the basis of their *accessibility*, and that the interplay between fringe accessibility and context accessibility might determine whether a given fringe feeling can be focally attended.

3. The Accessibility of Fringe Feelings: The "Fleeting Fringe" Versus the "Frozen Fringe"

Although Mangan does not attempt to systematically identify dimensions along which subclasses of fringe experience may vary, there is clearly a need to make such distinctions: "Fringe experiences seem to *differ among themselves functionally and phenomenally as much as they each differ from the nucleus*" (Galín, 1994, p. 389).

However, Mangan's conceptual analysis provides some clues that allow us to start outlining what these dimensions might be. Mangan's description of the phenomenological quality of different fringe feelings hints at a possible distinction between two ways in which fringe feelings can be identified. (1) One is to *directly introspect* them. A situation where fringe feelings can be accessed in this way is the previously described "Tip of the Tongue" (ToT) state, which according to Mangan (2001, Section 3.7) "is one of the relatively few cases in which we do not need to resort to an indirect method of demonstrating the reality of non-sensory experience. The "gap" that we feel in consciousness is pure non-sensory experience, pure fringe experience". (2) Another way to measure fringe feelings is to *introspectively compare* the experience in two situations of identical sensory content, because any differences between subjective experiences in these situations must then arise from differences in nonconscious context: "They (non-sensory experiences) elude direct introspective access, and their existence is easier to verify indirectly, especially through various contrasts in which the sensory aspect of experience is held constant" (Mangan, 2001, Section 2, my insertion). Mangan seems to suggest that a number of fringe feelings, including "Feelings of Rightness", "Feelings of Wrongness", and "Feelings of right direction in the thought" can only be identified by subjective comparison of this kind.

The difference between situations (1) and (2) concerns the on-line introspective accessibility of the feeling. There might be a number of reasons why one feeling is more accessible than another. One difference might be the *intensity* of the feeling. Mangan points out that although non-sensory experiences tend to be "less intense than vivid sensory experiences", "there are striking exceptions, for non-sensory experiences can at times be extremely intense (e.g., in manic episodes, aesthetic experience, the problem solving "Ah Ha!")" (Mangan, 2001, Section 5). I suggest that these "striking exceptions" are situations where fringe feelings can be held in focal attention and introspected directly. Another difference between (1) and (2) might be the *duration* of the feeling; some feelings endure for long enough to be attended, while others are so short-lived that they can only be identified by subjective comparison. Another variable is degree of *specificity*; certain feelings, for example "Feelings of Rightness" and "Wrongness", according to Mangan "operate in virtually all cognitive domains" (Mangan, 2001, Section 6). "Rightness works to help control virtually all voluntary conscious activity" (Mangan, 1993, p. 99). It is possible that a process of habituation makes us gradually less sensitive to these feelings, causing them to be experienced as less distinct and less accessible for introspective attention. For the same reasons, feelings occurring only in a limited number of situations would become more accessible.

Consider a possible distinction between what we might label the *Fleeting Fringe* and the *Frozen Fringe*, based on the degree of on-line introspective accessibility of the fringe feeling. The chosen terms relate to the quality of the fringe feeling: The term "fleeting" captures the ungraspable quality of fringe feelings that cannot be directly introspected upon, and the term "frozen" captures the enduring quality of fringe feelings that can be focally attended and are therefore accessible for introspective awareness.

The term *Fleeting Fringe* refers to experiences that can only be studied by subjective comparison because their intensity, duration or degree of specificity makes them impossible to access directly. The *Fleeting Fringe* includes feelings related to the transition between substantive thoughts as suggested by James (1890). Here, fringe feelings provide thought with a sense of smoothness, meaning, and integration (Mangan, 2001). According to Mangan, such feelings are always present in all cognitive activity, but are not experienced clearly when transition goes smoothly. However, they become slightly more accessible to consciousness in the transitive gap between two substantive thoughts: "Consciousness, then, has a kind of pulse. During the transition from one clear experience to the next, the vague aspects of consciousness momentarily come, relatively speaking, to the fore. But even during this transitive phase, vague experience remains vague" (Mangan, 1993, p. 95).

Although several examples of *Fleeting Fringe* can be suggested, including "Feelings of Rightness" (Mangan, 1993; 2001), "Feelings of Expectation", "Sense of Connection", "Feeling of intending to say something", and "Sense for the overall scheme or form" and "Feeling of Anticipation" (Epstein, 2000), one might argue that such subdivisions are difficult to draw because *Fleeting Fringes* are too similar in their phenomenological quality and in the type of cognitive operations to which they relate. They are more likely reflections of one fundamental evaluative feeling, for example the "Feeling of Rightness", as Mangan (2001) suggests. Distinctions between subcategories of fringe experience might be easier to make within the other subgroup of fringe consciousness, namely *Frozen Fringes*, to which I will now turn.

Whenever retrieval of relevant nonconscious context information is delayed or unsuccessful, a different type of subjective experience emerges. In the same way as a temperature drop causes water to freeze, retrieval failure might cause a *Fleeting Fringe* feeling to change qualitatively into what I call the *Frozen Fringe*. Successful memory retrieval might normally be accompanied by "Feelings of Rightness" or "Feelings of Anticipation", but in the case of retrieval failure these would be replaced by *Frozen Fringes*. One such feeling would be the strong feeling that the searched-for item is imminent, which is observed during the "Tip of the Tongue" (ToT) state. A related feeling would be the "Feeling of Knowing" (FoK) that one would be able to recognise the correct item if it was presented among other alternatives. These *Frozen Fringe* feelings are more accessible to introspective awareness because they can be held in focal attention.

Another class of *Frozen Fringe* is "preference judgements" in implicit perception, where implicit memory for stimuli that have previously been briefly or subliminally pre-exposed gives rise to verbally expressed "Feelings of Preference" (Bornstein, 1992; Zajonc, 1980). It has been argued that preference judgements result from perceptual fluency which is attributed to "liking a stimulus" (Bornstein & D'Agostino, 1994). Yet another example is the "Feeling of Familiarity" (FoF), which refers to the subjective feeling of having prior experience with a stimulus. FoF is most often explained in terms of unconscious attribution of perceptual fluency to previous encounter with the presented stimulus (Kelley & Jacoby, 1998). An alternative explanation is put forward by

Whittlesea and Williams (1998; 2000) who explain FoFs in terms of the attribution of *perceived discrepancy* to previous presentation. Here, perceived discrepancy refers to the discrepancy between *actual* and *expected* processing fluency for any given item, where the latter depends on the context in which the stimulus is presented. Whittlesea and Williams emphasise that FoF are experienced strongly: "In the state of subjective familiarity, the fact of familiarity is the focal characteristic and may be experienced with great force" (Whittlesea & Williams, 2000; p. 561). "Feelings of Preference" and "Feelings of Familiarity" in the above cases are examples of *Frozen Fringes* because they occur in situations of failure to retrieve the context information into consciousness. *Frozen Fringes* are more specialised than *Fleeting Fringes* because any one feeling only occurs within a specific area of cognitive activity and the phenomenology of the feeling therefore tells us something about the nature of the ongoing activity.

In every-day life, distinctions between fringe feelings might be less clear cut than is the case in the examples above, and situations of a "pure" fringe experience, e.g. the FoK, rarely occurs in everyday cognition. Sensory contents are always surrounded by fringe consciousness, and *Fleeting Fringes* are present in the majority of cognitive activities, even when *Frozen Fringes* are present. In addition, it might be the case that several *Frozen Fringes* appear together, and that clusters of *Frozen Fringe* tend to occur together in any given situation; e.g., the FoK may be associated with a FoF for the presented cue, as suggested by the "cue familiarity hypothesis" in the FoK literature (Reder, 1987; Metcalfe, 1993).

Fleeting Fringes versus *Frozen Fringes* should not be regarded as dichotomous categories, but rather as end points on an "accessibility continuum". I will give an example to illustrate this. So far, I have used FoK as an example of a *Frozen Fringe*, where FoK predicts subsequent memory performance after recall failure (Hart, 1965). However, later research suggests that the FoK might be present as a *Fleeting Fringe* in situations other than recall failure. Miner and Reder (1994) claim that *all* retrieval attempts are characterised by a "rapid FoK judgement", suggesting that FoK has a guiding function even when the searched-for item is easily retrievable. One might imagine an inverse relationship between retrievability of the item and accessibility of the FoK: The more easily retrieved the searched-for item is, the more fleeting would be the quality of the FoK.

4. The Potential Conscious Accessibility to Nonconscious Context Information: "Accessible Context Information" Versus "Inaccessible Context Information"

Nonconscious contexts include "vast amounts of information processing that never enter consciousness themselves, but still condition the contents of consciousness" (Mangan,

2001, Section 3). Mangan broadly speaks of context information as "potentially accessible information" without much further specification. We are left with a concept that includes any information not currently presented in conscious awareness, ranging from memory traces and previous contents of awareness, to plans, goals, expectations and beliefs.

Others have attempted to distinguish subtypes of nonconscious contexts, for example on the basis of the cognitive activity in which they are involved (Baars, 1988). McGovern (1993) suggests that differences in the subjectively experienced quality or "colour" of fringe feelings (e.g., the experienced difference between a "Feeling of Knowing" and a "Feeling of Familiarity") reflect underlying differences in the kind of nonconscious context in question. Given the assumption that fringe consciousness serves a "retrieval function" (Mangan, 1993; 2001), one might also be interested in how differences in the potential conscious accessibility to these nonconscious contexts shape the resulting feeling. For example, in the aforementioned "rapid FoK judgements" which are followed by successful retrieval, nonconscious context information is highly accessible in the sense that it is immediately retrieved. However, this is not the case for the FoK judgement in the RJR paradigm, which is characterised by an initial failure to recall the item from memory. I propose that a distinction can be made between *Inaccessible* and *Accessible* contexts. This proposed distinction adds another dimension to the subcategorisation of fringe experience.

Certain nonconscious contexts might be inaccessible to conscious awareness, and this idea of *Inaccessible Context Information* is supported by several empirical examples cited by Mangan (1993). Such examples include subliminal priming experiments (Marcel, 1983) and blindsight studies (Weiskrantz, 1992), where subjects sometimes claim to respond on the basis of "gut feelings" without the ability to identify the criteria on which the response is made. As mentioned, subliminal perception has also been shown to influence preference judgements (Bornstein, 1992), supporting the idea that subjective feelings can reflect nonconscious context information even when this information is not reflected in other measures of conscious awareness. According to Baars (1993) the knowledge structures that shape the ToT experience are never in themselves conscious, so unsuccessful ToT seems to be another case where there is *Inaccessible Context Information*. A final example of a situation where one might find subjective feelings reflecting inaccessible contexts is implicit learning. Reber (1989) claims that implicit learning can lead to intuitive feelings, e.g., "a sense of what is right". Implicitly learned knowledge, such as the rule based structure of an artificial grammar, produces above-chance performance on "objective" cued-report tests but not on "subjective" tests of metaknowledge about what one has learned, and subjects fail to verbally report the learned rule (Dienes & Berry, 1997). Research has yet to show whether implicit learning can generally give rise to subjective feelings which correlate with the underlying context information and which would fall somewhere between the objective/subjective distinction.

Other categories of nonconscious context information may be potentially more accessible to consciousness. These include some of our prior experience, current concerns and

personal goals (McGovern, 1993). Further examples include fixedness in language comprehension caused by previously presented sentences, and priming effects in the interpretation of ambiguous stimuli (Baars, 1988). Here, contexts are nonconscious only in the sense that they are not currently presented in consciousness in any detail, although they can easily be brought into awareness. The following description of "non-conscious knowledge" fits well with this subtype of nonconscious context information that we would label *Accessible Context Information*: "Our non-conscious knowledge of a particular object (or an event or idea) can be described by the whole set of values on the dimensions of its property space. In general, all of our non-conscious knowledge can be thought of as a set of representations in such spaces, which might be separate, or linked, or overlapped, or nested" (Galín, 1994; p. 390). Although our conscious awareness of an object includes only some of these features, there is no inherent property of the related non-conscious information that prevents it from becoming conscious. An example would be a "Feeling of Sadness" on the first sunny day in spring, where the nonconscious context would be the memory of a close relative who died during spring the year before. Although not currently aware of this memory, you might be able to easily retrieve it from memory and become aware of it.

It is important to emphasise that *Accessible* and *Inaccessible Context Information* are not distinct categories, but should again be regarded as the endpoints of a continuum. For example, when a ToT state results in successful retrieval, nonconscious context information is inaccessible at the time the ToT is reported, but experimental evidence shows that in 40-50% of observed ToT cases the information is retrieved within a few minutes (Brown, 1991), suggesting that the context information is potentially accessible. We can think of the nonconscious context in an example like this as having an intermediate level of accessibility. The context information here is less accessible than in rapid FoK judgements followed by successful retrieval, but more accessible than in experiments using subliminally presented stimuli. This suggests that there is a continuum, ranging from *Inaccessible* to *Accessible Context Information*, where fringe consciousness can represent this context information in a summary format at all points along the continuum. It might also be the case that the influence of the nonconscious context on the resulting fringe feeling in some cases could remain inaccessible even when the context information itself was potentially accessible.

Given a range in the accessibility of nonconscious context information that shapes fringe consciousness, an important question for future research is to establish the variables that influence accessibility. Possible candidates include levels of activation of nonconsciously represented information, the content of the information, the current conscious contextual environment, and the distinction between implicit and explicit information processing systems which some have argued are based on functionally, neurologically and evolutionarily separable systems (Reber, 1997).

One should also be aware of the theoretical possibility that the nonconscious context information that gives rise to a fringe feeling might in some cases differ from the information one is *trying* to access via a fringe experience. This possibility can be

explored through systematic empirical investigation of fringe feelings in situations of intermediate to high context accessibility.

5. A Two-Dimensional Concept of Fringe Consciousness

I have proposed a distinction between two dimensions which allow us to differentiate different subtypes of fringe consciousness based on (a) the on-line introspective accessibility of the fringe feeling, ranging from *Fleeting* to *Frozen*; and (b) the potential conscious accessibility to previously nonconscious context information, ranging from *Inaccessible Context Information* to *Accessible Context Information*. I have further suggested that these are continuous dimensions and that they constitute a two-dimensional space within which each fringe experience can be located.

In most cases the accessibility of the nonconscious context information will determine the accessibility of the fringe feeling, producing a negative relationship between context accessibility and fringe accessibility: In the case of *Inaccessible Context Information*, i.e., when there is a permanent failure to access the searched-for information, this can give rise to highly accessible, long-lasting *Frozen Fringe* feelings that are available for introspection. *Accessible Context Information*, on the other hand, is associated with *Fleeting Fringe* feelings. Although the exact shape of the curve that describes this negative relationship between fringe accessibility and context accessibility is an open issue, there are reasons to suspect it will not necessarily prove linear; e.g., reductions from high to medium accessibility of nonconscious context may make relatively little difference to the stability and accessibility of the related fringe feelings, while further reductions beyond a critical point could begin to impair fringe access rapidly.

Examples of *Fleeting Fringe* feelings based on *Accessible Context Information* might be the "Feeling of Rightness" when reading a poem, the "Feeling of Wrongness" in a patient with anxiety confronted with an anxiety-provoking situation, and the rapid FoK judgement in memory retrieval (Miner & Reder, 1994). An example of a *Frozen Fringe* based on nonconscious context information with an intermediate level of accessibility would be FoK following retrieval failure in the RJR paradigm (Hart, 1965). A hypothetical example of a *Frozen Fringe* based on *Inaccessible Context Information* could be an ability to use intuitive hunches to make predictive judgements of the next stimulus position in a sequence of stimulus events which follows an implicitly learned rule. Fringe feelings might also be involved in attempts to classify whether stimulus items follow an implicit learned rule, such as finite state grammar. For example, items that obey the implicitly learned rule might give rise to a longer lasting variety of Feeling of Rightness; this last example actually already derives some empirical support from the work of Whittlesea and Leboe (2000) who suggest a role for global experiences of "coherence", that are rather reminiscent of Mangan's FoR, in implicit classification tasks.

One should be aware of the possibility that one global fringe feeling might simultaneously relate to several nonconscious contexts at different levels of accessibility.

Let us imagine the fringe feeling of anxiety. A patient with social anxiety might experience a sudden panic attack with an associated feeling of anxiety when arriving at a social gathering. The context could be the thought that "Situations where I meet new people are threatening to me". This nonconscious context is potentially accessible to consciousness, and might over time become conscious and lead to explicit thoughts and expectations toward potentially anxiety-provoking situations. However, contexts at other levels of accessibility are slightly more difficult to bring into conscious awareness, as in the case of an underlying negative self-schema ("I am useless") or a deep fear of being rejected, which would require greater time, cognitive resources, and perhaps therapy to bring into conscious awareness.

6. A Two-Dimensional Concept Of Fringe Consciousness - One Step Closer To Understanding the Relationship Between Fringe Consciousness and Attention

I have argued that a superficial paradox in Mangan's account of fringe consciousness can provide a starting point for further investigations of the nature of the fringe. On the one hand, there is a proposed inability to hold attention on fringe feelings because this act itself changes the phenomenological experience. On the other hand, there are empirical, phenomenological and theoretical arguments for assuming that attention can under certain circumstances be held on fringe feelings which veridically predict subsequent behaviour. Resolution of the paradox lies in first distinguishing between the act of *directing* attention to the fringe and the act of *holding* attention on the fringe, and then in proposing that one's ability to *hold* attention on the fringe - the accessibility of the fringe - is variable. This variable accessibility is in turn inversely correlated with the degree of accessibility of the related nonconscious context - i.e., with the amount of time (or perhaps effort) required to retrieve the contextual information into consciousness. Fringe feelings such as "Feelings of Rightness" during thought transitions in the usual stream of consciousness, seem to derive from highly accessible nonconscious contexts, and are short-lived and difficult to introspect on directly. Examples such as the "Tip of the Tongue" state seem to derive from more inaccessible contextual information, and are longer-lived and easier to focally attend before the "menu bar" disappears.

The variable phenomenology of the fringe, from "fleeting" to "frozen", from elusive to focally graspable, seems no mere epiphenomenal accident. It can be related to differences in the functional role of the fringe at different levels of accessibility of nonconscious context.

First take the case of nonconscious context information that is highly accessible. Conscious access to the contextual information will usually occur very quickly in this situation. The ability to hold attention on the fringe feeling, which would allow detailed

introspective observation of the feeling, is not necessary. Here, fringe consciousness' function is to *monitor* the degree of "fit" between the nonconscious context information and current conscious thoughts, and "When the overall flow of contents or trajectory of consciousness is going well, we feel rightness" (Mangan, 2001: Section 6). For example, upon reading Mangan's "kite" paragraph (Mangan, 2001; Section 2), a series of brief "Feelings of Rightness" and "Wrongness" might signal the degree of coherence between each of the sentences and their nonconscious contexts, namely the previously read sentences and the provided word "Kite". One cannot focally attend on these feelings.

At intermediate levels of context accessibility, the retrieval of relevant context information into consciousness requires time and maybe more cognitive effort. The most important function of fringe consciousness is now a *categorising* one - to identify the nature of the gap (e.g., retrieval failure, familiarity, closeness to solution) between the nonconscious context and the contents of consciousness. This requires more sustained introspective access. Take an example of a fringe feeling based on intermediate context accessibility - the FoK judgement in the RJR paradigm. Here, we not only have to identify existence of a gap between the contents of awareness and nonconscious context ("Feeling of Wrongness"); in order to facilitate the retrieval of relevant information from memory, we must also be able to categorise the nature and strength of this feeling. The *nature* of the gap ("Feeling of *Knowing*") provides the person with information about the cognitive operation which needs to be initiated, in this case memory retrieval. And the *size* of the gap ("weak" versus "strong" FoK) provides the person with information concerning the amount of cognitive effort required to retrieve the searched-for item from memory. From a functional point of view, the necessity to label and assess the strength of one's fringe feeling sits hand in glove with the occurrence of a longer lasting, more stable fringe experience which can be focally attended and analytically explored. The empirical finding that FoK judgements predict subsequent memory performance (Metcalf, 2000) lends support to the assumption that an ability to introspectively access the strength of a fringe feeling plays a functional role in memory retrieval.

When nonconscious context information is highly inaccessible, relevant context information cannot in its current format be brought into awareness. However, the ability to *categorise* the nature of the gap between contents of awareness and nonconscious contexts is more important than ever, and this again depends on the ability to hold attention on the fringe feeling. This can be illustrated by the example of implicit learning. In a number of real-life situations, including situations of social interaction, the ability to make classifications and judgements that help us to predict future events often depends on learning the regularities of a complex stimulus environment, without necessarily developing full explicit insight into the nature of the learned rules. A colourful laboratory study of this kind of ability is provided by Lewicki et al. (1994) who exposed participants to kinematograms of actors (i.e., videos of the actors moving in the dark but with light patches attached to various points on their limbs) with concurrent audio descriptions of the actors' "character". Unknown to the participants, there was a hidden covariation between the spacing of the light patches and the described "character". Subsequently, participants tried to use their intuitive feelings to judge the character of novel kinematogram actors from their "body language". Although participants did not

consciously notice the variations in spacing of the light patches, their hunches showed an above-chance accordance with the hidden rule. Translated into a real life environment containing many implicitly-learned rule-based relationships, the ability to label and distinguish the various hunches or intuitions that one experiences will be crucial in making correct categorisations and predictions. In addition, access to the nature of the fringe feelings reflecting nonconscious context information will enable one to monitor and thus potentially modify one's ensuing behavioural responses.

Note

This work is supported by a postgraduate grant to the author from the University of Bergen.

References

- Baars, B.J. (1988). *A cognitive theory of consciousness*. New York: Cambridge University Press.
- Baars, B.J. (1993). Putting the Focus on the Fringe: Three Empirical Cases. *Consciousness and Cognition*, 2, 126- 136.
- Bornstein, R.F. (1992). Subliminal Mere Exposure Effects. In R.F. Bornstein & T.S. Pittman (Eds). *Perception without awareness: Cognitive, Clinical and Social Perspectives*. pp. 191-210. New York: Guildford Press.
- Bornstein, R.F., & D'Agostino, P. (1994). The attribution and discounting of perceptual fluency: Preliminary tests of a perceptual fluency/attributional model of the mere exposure effect. *Social Cognition*, 12(2), 103-128.
- Brown, A.S. (1991). A Review of the Tip-of-the-Tongue Experience. *Psychological Bulletin*, 109(2), 204-223.
- Brown, R., & McNeill, D. (1966), The "tip of the tongue" phenomenon. *Journal of Verbal Learning and Verbal Behaviour*, 5(4), 325-337.
- Dienes, Z., & Berry, D. (1997). Implicit learning: Below the subjective threshold. *Psychonomic Bulletin & Review*, 4(1), 3-23.
- Epstein, R. (2000). The Neural-Cognitive Basis of the Jamesian Stream of Thought. *Consciousness and Cognition*, 9, 550-575.

Ericsson, K.A., & Simon, H.A. (1980). Verbal Reports as Data. *Psychological Review*, 87(3), 215-251.

Fallshore, M., & Schooler, J.W. (1995). Verbal Vulnerability of Perceptual Expertise. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 21(6), 1608-1623.

Galin, D. (1994). The Structure of Awareness: Contemporary Applications of William James' Forgotten Concept of "The Fringe". *The Journal of Mind and Behaviour, Autumn Vol 15(4)*, 375-402.

Hart, J.T. (1965). Memory and the feeling-of-knowing experience. *Journal of Educational Psychology*, 56, 208-216.

James, W. (1890). *The principles of psychology*. New York: Holt.

Kelley, C.M., & Jacoby, L.L. (1998). Subjective reports and process dissociation: Fluency, knowing and feeling. *Acta Psychologica*, 98, 127-140.

Lewicki, P., Hill, T., and Czyzewska, M. (1994). Nonconscious indirect inferences in encoding. *Journal of Experimental Psychology: General*, 123, 257-263.

Mangan, B. (1993). Taking Phenomenology Seriously: The "Fringe" and Its Implications for Cognitive Research. *Consciousness and Cognition*, 2, 89-108.

Mangan, B. (2000). What Feeling Is the "Feeling of Knowing"? *Consciousness and Cognition*, 9, 538-544.

Mangan, B. (2001). Sensation's Ghost. The Non-Sensory "Fringe" of Consciousness. *Psyche* 7(18). <http://psyche.cs.monash.edu.au/v7/psyche-7-18-mangan.html>

Marcel (1983). Conscious and unconscious perception: An approach to relations between phenomenal experience and perceptual processes. *Cognitive Psychology*, 15, 238- 300.

McGovern, K. (1993). Feelings in the Fringe. *Consciousness and Cognition*, 2, 113-118.

Metcalf, J. (1986). Feeling of Knowing in Memory and Problem Solving. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 12(2), 288-294.

Metcalf, J. (1987). Intuition in insight and noninsight problem solving. *Memory & Cognition*, 15(3), 238- 246.

Metcalf, J. (1993). Novelty monitoring, metacognition and control in a composite holographic associative recall model: Implications for Korsakoff amnesia. *Psychological Review*, 100, 3-22.

Metcalfe, J. (2000). Metamemory. Theory and Data. In E. Tulving & F.I.M. Craik (Eds.), *The Oxford Handbook of Memory*. Oxford University Press.

Miner, A.C., & Reder, L.M. (1994). A new look at feeling of knowing: Its metacognitive role in regulating question answering. In J. Metcalfe & A.P. Shimamura (Eds.), *Metacognition: Knowing about knowing*. pp. 47-70, Cambridge, MA, US: The MIT Press.

Reber, A.S. (1989). Implicit Learning and Tacit Knowledge. *Journal of Experimental Psychology: General*, 118(3), 219-235.

Reber, A.S. (1997). How to differentiate implicit and explicit modes of acquisition. In J.D. Cohen & J.W. Schooler (Eds.), *Scientific Approaches to Consciousness*, pp.137-159, New Jersey: Lawrence Erlbaum Associates.

Reder, L.M. (1987). Strategy selection in question answering. *Cognitive Psychology*, 19, 90-138.

Rock, I. & Gutman, D. (1981). The effect of inattention on form perception. *Journal of Experimental Psychology: Human Perception and Performance*, 7, 275-285.

Schooler, J.W., & Engstler-Schooler, T.Y. (1990). Verbal overshadowing of visual memories: Some things are better left unsaid. *Cognitive Psychology*, 22, 36-71.

Weiskrantz (1992). Introduction: Dissociated issues. In A. Milner & M. Rugg (Eds.), *The neuropsychology of consciousness*. New York: Academic Press.

Whittlesea, B.W.A., & Leboe, J.P. (2000). The Heuristic Basis of Remembering and Classification: Fluency, Generation, and Resemblance. *Journal of Experimental Psychology: General*, 129(1), 84-106.

Whittlesea, B.W.A., & Williams, L.D. (1998). Why do strangers feel familiar, but friends don't? The unexpected basis of feelings of familiarity. *Acta Psychologica*, 98, 141-166.

Whittlesea, B.W.A., & Williams, L.D. (2000). The Source of Feelings of Familiarity: The Discrepancy-Attribution Hypothesis. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 26(3), 547-565.

Widner, R.L., & Smith, S.M. (1996). Feeling-of-knowing judgments from the subject's perspective. *American Journal of Psychology*, 109(3), 373-387.

Zajonc, R.B. (1980). Feeling & thinking: Preferences need no inferences. *American Psychologist*, 35, 151-175.