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Obsessive Compulsive Disorder: Control through Ritual Actions

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1. Introduction

I get up, shower, turn on the coffee machine, and as the coffee is preparing itself, I get dressed and style my hair (if possible), sit down while I drink coffee, then pack my bag, brush my teeth, and finally, run to catch the bus. Every morning the same sequence of actions in which one follows the other in the same pattern. The film plot, where the star of the film wakes up one morning to find out that the previous day is repeating itself over and over again, has been used endlessly. However, in my plot I would probably never make this discovery. My morning ritual is repeating itself already, making it impossible for me to distinguish one morning from another, and only my calendar turns Monday into Tuesday and Tuesday into Wednesday and so on. One morning I am interrupted in my morning ritual, as the mailman delivers a package to me, and having lost time receiving the package, my schedule is pushed. In lack of time, I have to skip the five minute coffee break of my morning routine and move straight along to the following part of the scheme: Packing the bag of today. At the front door, I check that the door is really locked though I turned the key and heard it click just a few seconds ago, and as I run for the bus, I cannot avoid the feeling that I have forgotten something. Did I turn off the coffee machine? I remember seeing and recognizing that the light was on, but did I actually hit the button to off it?

> I am certainly not the first person to have been struck by the resemblance between what are called obsessive actions in sufferers from nervous affections and the observances by means of which believers give expression to their piety (Freud 1907, 116).

In 1907 Sigmund Freud made this comment on the similarities between ritual practice and obsessive behavior to which he attached the title “Zwangsneurose” (obsessional neurosis) characterized by small adjustments to everyday actions, and though these additions, restrictions, or arrangements seems meaningless, the patient is incapable of not performing the actions. Furthermore, he refers to the behavior as “sacred acts” which specific constitution has to be followed in order to relief the obsessions of the patient. However, just as the restricted performance accomplishes to liberate the patient from the anxiety, it is reinforcing the anxiety, simultaneously, due to the importance of the correctness of the ritual as well as the success achieved by a correct performance (Freud 1907, 116-117).

Obsessive Compulsive Disorder (OCD) represents ritual actions, and the compulsive action of OCD is defined by characteristics of a ritual action such as non-functionality, goal-demotion, redundancy and repetition (Boyer & Liénard 2006, 597-598). The ritual action is the result of a precautionary system, representing an illusion of control (Moulding & Kyrios 2006, 577).

The comparative study of the behavior of an OCD-patient and ritual actions requires a definition of such actions. The ritual action is defined in its difference from an ordinary, functional action, and based on the presented theory of ritual actions, the OCD behavior will be interpreted on these terms. In this process, I will draw on action theories of Jeffrey M. Zacks and Barbara Tversky among others. Following the comparison of OCD behavior and the ritual action theory, OCD as a model of ritualized behavior will present the argument, that the actions of OCD-patients represent pathological rituals. Results of comparative experiments show similarities between the perception of ritual actions and compulsive behavior of OCD-patients, and having established OCD-behavior as a model of ritual behavior, Pascal Boyer and Pierre Liénard's "Hazard-Precaution system" in OCD connection and Paul M. Salkovskis studies will contribute to the evaluation of the ritual behavior as reactions to states of anxiety, creating a sense of control, as well as the reinforcing factor of the successful ritual action. The relationship between thought and action in both religion and OCD will lead to a conclusion.

The study is not an evaluation of the physiological causes of OCD. Neither will solutions or treatments of the disorder be included unless these will contribute to the focus of the comparative study at hand.

2. The Cognitive Approach

> The combination of mental activities, which include perception, memory, reasoning, judgment, problem-solving, language, symbolism, and conceptual thought, that enable a person to experience and learn about his or her environment. (Chambers Dictionary 2001, 239).

This description made by Chambers Dictionary illustrates the difficulties in defining the cognitive science, as a wide range of subjects are included in its description. Basically, the brain constructs the environment of the individual through independent mental systems (Geertz 2004, 353). Thus, the individual perception and interaction with the outside world

are the results of brain activities. Internal mental processes are the foundation of how people perceive, think, act, and react to an outside environment (Jensen 2008, 10). Here, the separation of the internal and external world is significant. The individual are only able to perceive an internal world, as the external world will always be "unknown" (Frith 2007, 132). What is perceived as the world outside is the individual perception of the world outside, and this perception is still internal. The individual perception or picture of the environment is the individual's construction which is different from other people's perceptions.

> Our brains build models of the world and continuously modify these models on the basis of the signals that reach our senses. So, what we actually perceive are our brain's models of the world. (Frith 2007, 134).

Cognition is the mental capacities and processes of the human brain in the interaction and perception of the environment; material, social (culture), and symbolically (language) (Jensen 2008, 10). This incoming data is processed in the brain and stored as a model of the world. As new information is processed, the model is modified to agree with the new data. Thus, cognition is not just information processing, but the information processing is used in the interaction with the environment (examples will be represented in the description of the ritual action).

Within the cognitive approach, different fields contribute to a study of religion and ritual, and this means that interpretive and observing approaches are supported by more substantial and explanatory evidence. Neuroscience, biology, archeology and cultural studies among others contribute to an understanding of religious belief and practice (Geertz 2004, 351).

Across religious beliefs and ritual practices, several elements of religious worship seem to be present. A universal mental structure could explain such similarities as results of human brain activities in which the constructions of religion are a general human production (Geertz 2004, 353; Lawson 2008, 307). The "information processing" is a mental system enabling the human being to "process" the environment and act according to this information. Rituals appearing in their distinctive ritual form across different religions are a product of the capacities and constraints of cognitive systems (McCauley & Lawson 2007, 211). Thoughts and experiences are productions of neurological and psychological processes which enable humans to construct and imagine things. An

example of the universal mechanisms of religion is the description of the ritual action of McCauley & Lawson in which the ritual action is a subset of the ordinary action (McCauley & Lawson 2007, 223). An action consists of an agent doing something to a patient by means of an instrument. The ritual action is of the same cognitive system, but with the difference that the agent or the patient of the action is supernatural (McCauley & Lawson 2007, 230). Cognitive systems enable the human brain to connect action sequences to the intentions and goals of an agent. Thus, the structure of both ordinary and ritual actions is explained as universal to all humans. The content of the action may vary, but the form is a result of the human brain and a human way of processing the environment.

Another cognitive theory representing the universalism is presented in Pascal Boyer's counter-intuitive categories, illustrating the capacities and constraints of the cognitive systems, in which the human mind has particular mental predispositions (Boyer 2000, 198-199). The supernatural agent in the ritual actions is not a coincidental image, but a creation of universal cognitive systems, and this enables Boyer to propose templates of available supernatural agents. The intuitive ontology has to be violated or "tweaked" at some point: A tree that speaks violates our understanding of the capabilities of the tree. The theory of the natural selection is more complicated than described here, but illustrates the idea of the universal cognitive systems. Being able to construct templates of supernatural agents, that will be accepted and remembered by believers, demonstrates a general human mechanism. In this way, the cognitive approach suggests human mental systems as an explanation of universal occurrences in ritual practices (Geertz 2008, 18).

3. The Ritual Action

In Islam, a Muslim performs a cleansing ritual before the ritual prayer. Parts of the body are washed in a particular order, and actions are repeated, according to the specific structure of the ritual. By executing the *wudhu*, the participant undergoes a transformation from a state of impurity as preparation for the actual ritual – the prayer (Glassé 2002, 477-479). The entering of the religious sphere is marked by such preparations and the awareness of the transformation. By using the term "ritual", something other, and even opposite, than the ordinary is to be expected, and though the *wudhu* ritual may need interpretation to the outsider, the form of the ritual is not surprising. When differentiating between the ritual action and the ordinary action, definitions are a necessity. A cognitive

view on a theory of ritual action supports the statement that the same cognitive system lies behind both the ritual action and the ordinary action, and thereby, these are both results of the same brain activity of information processing (Lawson 2008, 307-308). However, the ordinary action is defined by its straightforwardness and the importance of functionality in the goal-directed form, whereas the unpredictable ritual action strengthens attention due to invariance, non-functionality, and goal-demotion (Boyer & Liénard 2006, 597-598).

An action is the intentionally performed event which is conceived by an observer to have a beginning and an end, and thereby, being bound in time and space (Zacks & Tversky 2001, 3-4). This definition is made by Jeffrey M. Zack and colleagues, and in their Event Segmentation Theory, human cognition is able to divide an event into subparts which enables them to predict the next subpart of an occurring event based on past experiences. Environment is perceived according to the predictions based on memory, and predictions are evaluated, according to the correctness of the prediction. Thus, the cognitive system processes the environment and experiences as information, stores it in memory, and uses it to predict similar events as event models (Zacks & Sargent 2010, 254-255). The predictions are an ongoing process unconscious to the individual, but are the basis of conscious expectations which facilitates the individual to predict the near future creating a sense of control and security (Zacks & Sargent 2010, 255). A muscular man with tattoos down the arms is rolling up the sleeves, as he is walking towards the individual in a threatening manner. According to the Event Segmentation Theory, the individual will decide how to react to the situation by dividing the event into subparts and predicting the following parts by analyzing the occurring part of the event based on the model of the event. The individual may predict that the near future will require an immediate reaction to a dangerous situation, as the event and the environment are read and the individual reacts according to the prediction (the individual may decide to run from the threatening man). The segmentation of the event and the prediction of the outcome happen unconsciously while the reaction based on the unconscious segmentation is conscious. Moreover, the unconscious prediction of actions causes less attention in a non-hazard environment due to the event segmentation (Zacks & Sargent 2010, 257). Being able to predict near future, high attention is not required to every subpart of the event. Not remembering driving to work is a result of low attention situations where the predictions of the event of driving to work will not have to be modified. The route is the same, and most times the event is without large modifications. However, if suddenly the preceding car crashes, high attention is required. Thus, the prediction error of everyday experiences

is low, as these events are familiar and have been repeated daily, and the individual achieves extended behavioral control. The environment conforms to the event model based on predictions. The structure is known, even routine in some cases, and requires little modification as well as attention (Zacks & Sargent 2010, 257; Boyer & Liénard 2006, 606).

Interconnected to the event segmentation is the goal-directedness and thereby, the functionality of the ordinary action (Sørensen 2007, 293). As a continuation of the event segmentation, the subparts of the ordinary action are structured, according to the goal of the action. In this causal structure, one action follows another to reach a goal, and the functionality of the action is defined by the intentions. An example would be the case of hunger in which the individual would eat aiming towards not being hungry. In other worlds, the action of eating is directed towards the purpose of the action, which is satisfying hunger, and thereby, the action has a causal structure immediately connected to the intended goal (Zacks & Tversky 2001, 9-10). Dividing the event of eating into subparts may include taking a spoon, dipping it into the soup, raising the arm, opening the mouth and so on, but the structure of these subparts and the way one part follows the other is due to the functionality of the actions: The function of the action is to reach the goal. Though the sequence of the subparts of the ordinary action is defined by its functionality, the subparts do not inquire invariance in its performance. Whether the spoon is in the left or the right hand, or if the agent of the action is standing, sitting, or dancing around, does not affect the goal-directedness of the action though it may be unpredictable. The aim of satisfying hunger will be reached, and the functionality of the action is not influenced by inconsistencies in the performance of eating which leaves the performance of the subparts free. The purpose of the action is important – how this goal is achieved is not essential (Sørensen 2007, 287).

In other words, the action sequence is defined by an ultimate intention (studying to get a degree) which is strived for through proximate intensions as the event is divided into subparts (writing an assignment to pass an exam). Several proximate intentions make up an action sequence in the overall purpose of the event – the ultimate intention (Sørensen 2007, 285). The proximate intention of passing an exam is a subpart of the ultimate intention of getting a degree, and even this proximate intention can be divided into subparts such as sitting in class or writing notes, and thereby, passing an exam may be the ultimate intention itself, as well as an ultimate intention is the proximate intention of another action sequence and another ultimate intention. Proximate goals are accomplished

in the achievement of the ultimate intention. Thus, the ordinary action sequence is proximate intentions which are subordinate an ultimate intention (Zacks & Tversky 2001, 8).

Having defined the ordinary action as a goal-directed event, where the actions are according to the intentions, and thus, the functionality is a result of reaching a goal, the ritual action is defined in the lack of functionality due to goal-demotion (Boyer & Liénard 2006, 605). To illustrate how the ritual action differentiates from this description, the Holy Communion will be an example. The Holy Communion of the Christian Church offers the participant absolution through the supper where wafer and wine are taken as symbols of body and blood of Christ. The purpose of the wafer and the wine is not to satisfy hunger and thirst. The ordinary action of eating when hungry has a whole other goal as a ritual action. The purpose of the action is absolution, and thus, the action is disconnected from the ultimate intension of eating wafer and drinking wine. The disassociation between the proximate intentions and the ultimate intention results in a lack of causal structure (Sørensen 2007, 293). Where the ordinary action sequence is directed towards the goal, the ritual action sequence is non-functional as the sequence is not logically linked to the goal. Furthermore, the end of the ritual and the absolution of the participant are not obvious. In the ritual action sequence of non-functional subparts, the finish of the ritual event is difficult to decipher as it is not apparent when the task is accomplished (Zor et al. 2009, 290). The ritual action is determined by the ultimate intention, but the purpose of absolution of the Holy Communion is not apparent from the actions performed (eating wafer and drinking wine) and the actual sequence in which one action follows another in an invariant order. Opposed to the ordinary, functional action, the way towards the goal is essential to the ritual action. Absolution is not achieved by eating wafer and drinking wine alone, but the ritual action follows a strict structure, during which a priest offers the artifacts accompanied by recitation and symbolic gestures. The ultimate intension is not predictable to an outsider, and the sequence of proximate intentions only indicates that a ritual has occurred, not what has been achieved by it (Sørensen 2007, 293).

Because of the disconnection between intention and action, the prediction error of the ritual action sequence is high (Zacks & Sargent 2010, 256). The ultimate intention is unclear, and even though, such intentions became obvious the action sequence would still be unpredictable. The specific structure of the ritual action, opposed to the ordinary action, increases attention during the event as the subparts of the ritual action sequence do not follow a functional, causal line towards a goal. Furthermore, the specific and significant

structure of the ritual requires attention as the performance is essential (Boyer & Liénard 2006, 605). As mentioned above, high attention is not needed during most of the ordinary action, as the achievement of proximate intentions is not important as long as the ultimate intention are reached. The importance of the ritual action is illustrated through this non-functional form which requires a high level of attention as every part of the ritual performance is significant.

> I take the ritual to be a form or structure, defining it as the performance of more or less invariant sequences of formal acts and utterances not encoded by the performer. (Rappaport 1979, 175).

Roy A. Rappaport includes several elements in his definition of the ritual. First of all, he uses the term *form* and *structure* which implies that a specific ritual structure exists. Second, is a *sequence of formal acts,* the ritual actions are arranged in a *more or less invariant* order, and are to be a *performance*, but determined by somebody other than the performer. As illustrated, Rappaport's definition includes similar themes action theories implying that a ritual is defined in its actions.

4. Obsessive Compulsive Disorder

> First I turn on the water, then two pumps of liquid anti bacteria soap. Rub front of hands together, then use right hand to wash back of left then left hand to wash back of right. Next spread fingers then interlock them while rubbing together, do this 4 times, then rinse. Repeat ritual exactly the same for second time. Must always wash hands twice. Once to get the germs off and 2nd time to clean hands (RRQ, Female, 8/11/2009).

This is the description of the washing ritual of a woman suffering from OCD. It is apparent from the woman's account, that the event of washing hands follows a certain structure which is the basis of the ritual. The specific number of anti bacteria soap, the fixed line of actions in which one action follows another in a specific sequence, the repetition, and the redundancy indicates the importance of the actual action sequence over the functionality of the action – the washing of the hands. The association to the Islamic cleansing ritual (*wudhu*) is striking as the redundancy, the rigidity, the goal-demotion of

action, and the intention result in the specific ritual structure – both in the religious ritual and in the OCD-ritual (Boyer & Liénard 2008, 291).

The characteristics of OCD-behavior can be drawn from the title itself. The condition is described in exactly the three words; Obsessive Compulsive Disorder. These indicate the contents and the symptoms of a condition in which obsessive thoughts results in compulsive actions, and the pathology of this connection causes the condition to be labeled a disorder (Clark 2004, 5). Obsessions are persistent ideas, thoughts, images, or impulses, and these leads to compulsive actions, describing the irrationality and uncontrollability of such actions opposed to the ordinary action. The OCD-patient recognizes the obsessive thoughts as being own thoughts, as well as the compulsive actions are own impulses. However, the patient experiences the obsessions as pathological, meaning that the obsessive thoughts and the compulsive actions are involuntarily and unwanted, and the irrationality and absurdity of the actions are understood by the patient (Zor et al. 2009, 288-289). Thus, the classification of OCD as a disorder is a result of the marked distress and impairment caused by the condition.

Obsession leads to compulsion, as the obsessive thought results in a compulsive action (or reaction). The respective types of obsessions, such as contamination, symmetry, hoarding and religion, trigger different compulsive actions (washing, ordering / counting, hoarding and checking) (Boyer & Liénard 2006, 603-604). Thus, two patients diagnosed with OCD can experience completely different disorders, and the symptom patterns may be heterogeneous and overlapping (Mataix-cols et al. 2005, 228-229). The obsessions and compulsions vary from patient to patient, and the one specific type of OCD can be very different in both thought and action than the experiences of another OCD-patient. In the example of OCD-behavior above, the washing ritual is the compulsive action caused by the patients concern or obsession with contamination. Having completed the washing ritual undisturbed and as described, the patient obtains the feeling of being clean and a satisfaction in being "germ free". The satisfaction is only achieved when the action sequences is completed to the letter. The last sentence of the account illustrates the obsession: The procedure is repeated twice: *Once to wash the germs of and twice to clean the hands*. It is not enough to wash the hands once. Moreover, right hand washes back of left before the left hand washes the back of right to make the washing of the hands complete. The importance of structure specifies the obsessive thought behind the action – it is not just about washing the hands; it is a release of the obsession (Zor et al. 2009, 288). In this case, the patient accounts for the type of obsessive thought considering

contamination connected to the compulsive action of washing hands in agreement with a specific ritual structure. However, the OCD-patient does not always fall into one particular group within the diagnosis, as the same patient may experience different types of obsessions:

> Continuously counting letters in every word I see – within advertisements, newspapers & magazines, sign, etc.; looking at the size of each letter within advertisements (where unique font sizes are used); check the locks in my door 3 times before leaving my apt.; wash my hands in a specific manner each time & place the soap bar back to an exact spot each time; check the way my bed's made 3 times before I leave the home to make sure it's made the way I need it to be. (RRQ, Male, 1/6/2010).

This description of a 55 year old man contains several different patterns opposed to the woman's washing ritual mentioned above. The counting of letters, the checking of locks, the specific way to wash hands, the positioning of the soap are different symptoms experienced by the same patient in the diagnosis of OCD and presents a mixture of obsessions (symmetry, order, and contamination) and compulsions (counting, checking, washing and arranging). Contrasting the account of the washing ritual, which was a result of the woman's obsession with contamination apparent through her description of need to be "germ free", the obsession behind the man's washing ritual does not have to be contamination, as he does not report such considerations in the interview. Rather he is concerned with the structure, "…continuously thinking if I did what I wanted to do properly" (RRQ, Male, 1/6/2010; to the question: "If yes, what do you fear might happen?"). The specific manner in which he washes his hands might be caused by obsessive thoughts of symmetry and precision expressed in his worry of physically having performed the ritual "absolutely right". The similarity between the accounts is the way in which the obsession results in ritual actions, though the obsessions and compulsions may be very different in nature (Mataix-Cols et al. 2005, 229). Therefore, the comparative studies of OCD-behavior have received critique due to the complications of comparing the different types of OCD.

The compulsive actions which are considered irrational and unnecessary are driven by thoughts, and in the late 20th century, the importance of the obsessions causing the actions gave way for a cognitive approach and the inclusion of cognitive information

processing in the explanation of OCD (Moulding & Kyrios 2006, 575). Focusing on brain activities and the cognitive system in the study of the compulsive action, the cognitive approach seeks to clarify the actions through the obsessive thoughts causing the actions. The explanation of OCD as brain structures and cognitive processes is supported by the tendency to obsessions and compulsions of people not diagnosed with OCD (Boyer & Liénard 2008, 292). The routine is the action accomplished on a daily basis, and does not need a high degree of cognitive attention (Keren et al 2009, 2). The ordinary obsessions are similar in content and form, but what characterizes some obsessions as disorderly is the level of intensity of the obsessions as well as the distress caused by the condition. Checking if the coffee machine has been turned off as a part of a morning routine or washing hands in a particular manner do not necessarily signal OCD. As ordinary behavior, these actions are not inhibitory in the daily life, but the intensity, frequency and pathology of OCD-obsessions causes discomfort and uneasiness to the patient, and OCD-behavior is differentiated in its concentration and exaggeration of ordinary obsessions (Salkovskis 1985, 572). However, such occurrences of OCD-behavior in ordinary routines indicate a connection between the behavior and the cognitive system, as the obsessions of OCD-patients appears to be exaggerations of ordinary brain activity. The ritual action of OCD-behavior is the pathological manifestations of ordinary actions (Fiske & Haslam 1997, 211).

The intensity of the OCD-ritual suggests that the effects of the ritualized behavior are an inhibitory factor in the daily life of the OCD-patient. Obsessive thoughts leading to compulsive rituals results in an action sequence different than an ordinary action sequence (Zor et al. 2009, 295). The normal action of making coffee or washing the hands are a string of pragmatic acts necessary to reach the goal (a cup of coffee or clean hands). The rituals of OCD-patient are extensions and stereotypes of normal routines where the string of pragmatic actions is accompanied by redundant actions with little functional value to the actual action sequence (Zor et al. 2009, 293). Falling outside the pragmatic actions, the ritualized behavior does not contribute to the goal-directedness of the ordinary action sequence, but lacks the connection to the object of the event (Boyer & Liénard 2006, 597).

The definition of the ritual action includes a disconnection of action and intension, causing the non-functionality of the structure of the ritual action, and the high prediction error results in strengthened attention during the event to insure a correct and exact performance. A specific action sequence is not alterable by the individual, and thus, certain rules are to be followed (Boyer & Liénard 2008, 292). In the research of the ritual

behavior of OCD-patient comparisons between a group of OCD-patients and a group of people not diagnosed with OCD often constitutes the basis of experiments (Mataix-Cols et al. 2005, 228-229). The performance of an action by an OCD-patient is compared to the same action performed by a non-patient. Thus, the OCD-ritual of locking the car is compared to a control group, representing the normal action sequence of locking the car (Zor et al. 2009, 292). Based on the Event Segmentation Theory, Kristoffer Nielbo and Jesper Sørensen made the experiment of segmentation of non-functional actions in which participants segment action sequences into units, acting as the observer of a performance (Nielbo & Sørensen, 2-5). The participant views another agent performing an action sequence, and thus, the comparison is not just between functional and non-functional actions, but between a thirds party's perceptions of these. Thereby, the participants are asked to do a conscious representation of the unconscious brain activities described above: An event is divided into subparts. Every non-functional action sequence was characterized by redundancy, rigidity and goal-demotion (Boyer & Liénard 2008, 291). The results of the experiment showed increased segmentation in non-functional action sequences, opposed to the functional action sequences. Thus, the non-functionality of the actions results in the participants segmenting the sequence into smaller units.

> We believe that such behavior is caused by an increase in prediction error during perception of a non-functional action sequence because redundancy, rigidity, and goal demotion make it more difficult to integrate the sequence into a coherent event model. (Nielbo & Sørensen 2010, 6).

Due to the difficulties in event prediction, the action sequence tends to be divided into smaller parts, and this is supported by the experiments of Zor et al. in which the results of an experiment, where an OCD-patient and a control person were performing the same action, present the distinction between the shared acts and the unique acts of the two groups (Zor et al. 2009, 288-299). The shared acts between the two groups are the pragmatic or functional acts necessary to complete the task and reach the goal, whereas the unique acts are unnecessary as it is individual, and thereby, a dispensable subpart of the action sequence. The unique act does not contribute to accomplishing the task or achieving the object of the action sequence. The action sequence of the OCD-ritual was accomplished through a greater variety of acts than was the case of the control group, and as the behavior of the control group was dominated by shared acts, the OCD-behavior was

dominated by individual acts during the action sequence. However, though the OCD-ritual contained a significant amount of unique actions, the action sequence also included a larger portion of shared actions compared to the control group, as the shared acts / pragmatic acts are repeated in the action chain of the OCD-patient. In one of the experiments, the control participant accomplished the task of locking a car in an action sequence of ten shared act, meaning that all acts were functional in the achievement of locking the car (Zor et al. 2009, 292-293). The same task accomplished by the OCD-participant showed the same chain of ten acts interrupted by several unique acts as well as repetition of the pragmatic acts during the action sequence. As the action sequence is broken by non-functional subparts, it is difficult for the observer to comprehend the end of an action sequence. The non-functional subparts do not contribute to a goal-directed structure, and the event model constituted by the observer's previous experiences is not able to make predictions or definitions of the finish of the event. The repetitions and the non-functional actions constitute a high prediction error, as is the case of religious rituals as well.

Considering the description of the hand washing ritual above as a chain of shared and unique acts, the OCD-patient is an example of how the normal action chain is interrupted by individual acts and rules unnecessary to accomplishment of the task (RRQ, Female, 8/11/2009). The washing ritual contains several repetitions as well, both shared and unique. Referring to the shared acts as functional and the unique acts as non-functional, the sequence of functional acts (such as turning on the water, usage of soap, rubbing the hands together and rinsing with water) are broken by non-functional acts and repetitions (two pumps of liquid anti-bacteria soap, washing back of left and then back of right, interlocking the fingers and repeating four times).

Returning to the definition of the ritual by Roy A. Rappaport mentioned previously, the OCD-ritual follows the specific structure of an invariant action sequence which is experienced by the performer as outside determination (Rappaport 1979, 175). It can be discussed whether the determination is considered an external influence in the case of OCD, or if it is internal as the obsessions are the thoughts and ideas of the individual, and the individual recognizes these as own thought and actions. However, as the obsessions are unwanted by the patient, it might be experienced as an outside force. In the definition of the ritual action, the Holy Communion was used as an example of how the ordinary action of eating and drinking was consumed not with the intention of satisfying hunger, but in order to receive absolution. The ordinary event of eating is tweaked in the ritual

action which is the case of OCD-behavior (Sørensen 2007, 282). The ordinary action of washing hands is turned into a ritual in which functional actions are interrupted by non-functional actions. However, the ritualized behavior of the OCD-patient is pathological, as the obsessions and the compulsive actions are involuntary and unwanted opposed to the religious ritual. The participant of the Holy Communion seeks absolution attending the supper. The compulsive actions of OCD-patient are caused by pathological obsessions, and are not experienced as optional by the performer (Fiske & Haslam 1997, 212).

5. Order through Disorder

The ritualized behavior of OCD-patients is not restricted this context. The ritual action occurs in several situations outside the religious ritual – for example in the morning ritual. The need to perform an action sequence to achieve a goal that is not directly connected to the behavior is not unusual, and is not only found in OCD-patients (Boyer & Liénard 2008, 292). As mentioned above, OCD-behavior is diagnosed in the intensity of the obsessions and compulsions and the distress inflicted upon the patient. The behavior is found in ordinary people as well, though the reasons for performing the ritual require examination. The morning ritual is routinization more than a ritualization, and the routine is convenient, as little attention is needed, and thus, the goal of the morning ritual is achieved without having to consider every subaction of the ultimate intention (Zacks & Sargent 2010, 257). The cognitive system makes it easy for the individual to complete the series of action without much thought.

Having to listen to a twenty year old record before completing an exam does not have an apparent connection to the goal of the event, which is to pass the exam. Thus, the action sequence before the exam is non-functional, as it does not contribute to the intention of passing the exam (goal-demotion) (Moulding & Kyrios 2005, 577). However, it may be part of the exam ritual, and to achieve the goal of passing the exam the record must be played before every exam (repetition). If the ritual is interrupted, and the record for some reason has to be stopped before having reached the final note, the ritual is not completed, and has to be performed again to "work" (rigidity). The performer of the action is not necessarily a member of a certain religion, and the performance is not necessarily connected to religious beliefs. The "knock-on-wood" phenomenon illustrates how the control is achieved through superstitious behavior. However, the specific situation causes the student to perform the ritual as a result of the anxiety and instability under the

circumstances of the exam, and high attention is needed for the ritual to be successful, as the performance of the ritual is essential. The performance of the ritual action is not automatic, such as the morning ritual where the cognitive systems switch to automatic control.

Ritualized behavior often occurs in situations of transition and change which is consistent with the usage of the religious ritual (Boyer & Liénard 2008, 292). Puberty, illness, death and the like are transitional states which are often characterized by religious ritual to mark the state of transition. In his field work on the Ndembu tribe of Zambia, Victor Turner interpreted their rituals based on observation and Arnold van Gennep's threefold structure of the rite of passage (Turner 1969). The ritual is divided into three phases in the transition from one state to another, and the danger associated with such change resulted in the importance and the intensity of the ritual. Through the three phases (pre-liminal, liminal, and post-liminal) the object of the ritual is separated the ordinary world, undergoes a transformation, and returns to the ordinary world in the new state (Turner 1969, 94). According to Turner, the participant of the ritual is in a state of being "betwixt and between" during the liminal phase marking the actual transformation (Turner 1969, 95). Thus, the participant of the ritual is in a corridor between the old status and the new status (the old world and the new world) which made the liminal phase the most important, as this is where the transformation happens, and the changes occur. This involves a high degree of danger due to the importance of a correct transformation, and the significance of the ritual restrictions and the specific structure are reinforced.

> In each a woman suffers from gynecological disorders; then either her husband or a matrikinsman seeks out a deviner, who denominates the precise mode of affliction in which the shade, as Ndembu say, has "come out of the grave to catch her:" (Turner 1969, 13).

Within the Ndembu tribe, every person has an obligation to fulfill in the society. An infertile woman is not able to meet this obligation, and in the importance and the requirements of the woman to bear children, the state of infertility is a state of instability and disorder. In Turner's description of the "Isoma" ritual of the Ndembu tribe, the ritual is to transform the state of infertility to make the woman fertile. The "deviner" indentifies the exact ritual structure. In the example, the reason for the infertility is also expressed as a supernatural force. Order is created through disorder, and the non-functional form of

ritual action creates a sense of control. In the attempt to influence and change the present state of disorder, an ordinary action is not enough. The anxiety and instability cannot be controlled in ordinary measures, and a sense of control is gained through the ritual action, where disorders of the world can be reversed, and humans can influence the uncontrollable (Moulding & Kyrios 2005, 575; Rappaport 1979, 214).

The ritualized behavior of OCD-patients may be a result of the anxiety and instability described by Turner. As illustrated by the example of the performances of rituals before an exam, a sense of control is created through the disorder of the ritual action sequence (Moulding & Kyrios 2005, 577). Instable life stages or situations tend to increase the ritualized behavior of non-patients of OCD. Control or stability cannot be attained through ordinary actions, as the individual is not in control or has influence on the environment or conditions. This is apparent in the state of childhood, adolescence, pregnancy and parenthood among other transformational stages of life in which the individual has little or no control (Boyer & Liénard 2008, 292). In the cases of pregnancy and parenthood, the ritualized behavior may concentrate in continuous and intensified fear of hurting the infant. The pregnant woman is not able to control every part of the pregnancy, and in the fear of something happening to the infant, she may perform rituals in order to feel in control of the situation. Here, the fear of a traumatic event is essential and the obsessive thoughts of hurting the infant results in compulsive rituals.

6. The Ritual Action: Control of the Uncontrollable

In the cognitive theory of Pascal Boyer and Pierre Liénard, the action ritualization is the product of two cognitive systems: The "Action Parsing System" (discussed above as the Event Segmentation Theory) and the "Hazard-Precaution System", which enables the individual to detect potential danger and react in agreement with the "Action Parsing System" (Boyer & Liénard 2006, 595-596). The ordinary reaction to potential threats is defined in the detection of the threat, the interpretation of the threat, and the usage of the stored event models leading to a reaction (see the example of the threatening man used in the definition of the ritual action). Being in potential danger non-action is considered hazardous, and some kind of reaction is needed (Boyer & Liénard 2006, 600). Normally the reaction to the detection of potential danger is the last link of the chain, and thus, the reaction presents the closure of the sequence. However, in the case of OCD-behavior, closure is not achieved as the ritual performance results in doubts (if the ritual was carried

out correctly). Boyer and Liénard argue that the ritualized behavior is a maladaption of an adaptive advantage developed in humans. Being both time-consuming and attention-requiring, the behavior does not contribute to the functionality of the cognitive system (Boyer & Liénard 2006, 601).

The precautionary system constitutes specific reactions to inferred threats, and the ritual action is the product of this system (Boyer & Liénard 2006, 604). The intrusions are effects of the cognitive protection of the organism, and as mentioned above, the obsessions are not exclusive to the OCD-patients, but are found in the general population, though of less intensity. Thus, the negative intrusions are parts of the ordinary human cognitive system (Boyer & Liénard 2006, 606). Essential in the case of the ritual behavior of OCD is the patient's interpretation of the obsessions (Boyer & Liénard 2006, 606). OCD-patients misinterpret the significance of ordinary obsessions, giving these special meaning, and striving to neutralize these through ritual behavior. Here, Salkovskis' theory of personal responsibility may contribute to the connection between the intrusive thoughts and the performance of rituals. Intrusive thoughts of potential danger require a reaction in the form of the ritual action, and with this the individual incurs responsibility (Salkovskis et al. 2000, 348). Responsibility is:

> The belief that one has the power which is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes are perceived as essential to prevent. They may be actual, that is, having consequences in the real world, and / or at a moral level. (Salkovskis et al. 2000, 350).

Negative outcomes can be prevented through the correct performed rituals. According to Salkovskis, the ritual actions of OCD patients are caused by an exaggerated feeling of responsibility which results in anxiety as the patient interprets the pathological thoughts and ideas as a personal responsibility (Salkovskis et al. 2000, 350). Belief systems, expressed by OCD-patients, represent assumptions such as action being equal to thought, meaning that the thought about an action is similar to performing the action. The patient not only feels responsible for performed actions, but also for the pathological thoughts uncontrollable to the patient. This is combined with the perception of the similarity between causing an action and not trying to prevent the action. Not attempting to hinder a negative event is the same as having caused the event (Salkovskis et al. 2000, 348-351). The patient feels responsible for personal thoughts, and seeks to neutralize the

pathological intrusions through rituals ("I fear that someone may get hurt somehow" (RRQ, Female, 5/7/2009)).

The theory of responsibility can be exemplified by the ritual behavior in rape victims (Peles et al. 2009, 547). The critical incident of rape may start of the OCD, and the diagnosis is not unusual in the case of rape victims. The subjective belief system of the victim may cause the victim to feel personally responsible, though objectively the victim was irresponsible. Not preventing the incident is the same as making it happen, and this belief system may lead to intrusive thoughts and obsessions (Salkovskis et al. 2000, 350). The rape victim may experience the obsession of being dirty and contamination from the critical incident of violation. The misinterpretation of the obsessional contamination results in the compulsive action of washing the contamination off through ritual washing to relief the obsession. The victim creates washing ritual to neutralize the thoughts about contamination and in the desire for control of the situation, but the ritual action only increases the attention towards the obsession (according to the cognitive model of Obsessive Compulsive Disorder (Salkovskis et al. 2000, 349). In this case, a cognitive suggestion to an interpretation of the washing ritual would point to the desire for control in a situation where the victim is not able to control the intrusions and the outcome (Moulding & Kyrios 2006, 574-575). The ritual form of the washing ritual implies that it is not just a washing of the hand, but a neutralization of the intrusive thought of overall contamination. Symptoms of OCD is connected to the experiences of stressful, unstable, and uncontrollable events, suggesting that the discrepancy between the individuals sense of control and the desire for control results in ritual behavior (Moulding & Kyrios 2006, 576). The increase in ritual behavior of rape victims, pregnant women, and the student preparing for the exam proposes the ritual behavior as a way to gain the desired control opposed to the control objectively available to the individual (Moulding & Kyrios 2006, 577).

However, some of the interviewed OCD-patients do not express anxiety as basis of their obsessive behavior. In some cases, the patient is not able to explain the compulsive actions, not even the obsessive thought behind the action.

> I am a counter. As a child, I counted the organ pipes in my church and other things. While growing, my counting must not have been as prevalent because of growth years… This is how I count and I believe I do it subconsciously and consciously: Count four sides of a picture frame one two three four then the math one two three

> four or 1 2 3 4 plus 1 2 3 4 = 8. I count the same mail boxes as I drive by them 1 2 3 4 5 6 7 then start over… It is like having a beehive with 200,000 bees in my brain. (RRQ, Male, 5/10/2009).

In the washing ritual used as an example of the ritual behavior previously, the compulsive actions are articulated as results of a general anxiety considering contamination (RRQ, Female, 8/11/2009). In the selected part of the ritual description shown above, the patient does not utter any obsession behind the compulsive counting. In the interview, he elaborates further stating that the ritual is never "done", and that questions concerning the relief of anxiety and beginning and end of the ritual reveal that "You don't get it" (RRQ, Male, 5/10/2009, to the question: "How do you generally fell after the ritual is done?"). Apparently this patient does not connect the counting to any anxiety or instability (Clark 2004, 6). Contrasting, he expresses the compulsive actions as pathological in the sense that he cannot control it or explain the compulsion of counting: "If I did not count, I would be well and able to live a normal life" (RRQ, Male, 5/10/2009, to the question: If yes, what do you fear might happen?"). Thus, this account clearly does not express the "Hazard-Precaution System", and the patient would probably refuse this theory, as he refuses the questions concerning obsessions based on anxiety and responsibility issues. However, it could be argued that the patient is unaware of the anxiety behind the counting ritual, and that the ritual used as precautions against potential danger is unconscious. The unconsciousness of the anxiety leading to the neutralizing rituals could be supported by the order and symmetry in the compulsive action of counting. The ordering and counting of the environment would then be the unconscious attempt of the mental systems to arrange and create symmetry of the outside world. The environment is controlled through this ordering and categorizing of the world which is uncontrollable to the patient (Moulding & Kyrios 2006, 574, Fiske & Haslam, 220). This is speculation, and the theory is not supported by substantial evidence.

Though some of the OCD-patients do not express any conscious recognition of anxieties related to the compulsive actions, others articulate concern and unease in connection to the performance of the rituals (Clark 2004, 6). The 55 year old man, who was obsessed with the arrangement and symmetry of his environment, which resulted in counting letters, washing in a particular manner, arranging the soap, and checking that the bed is made just right, expresses anxiety in his concern of the successfulness of the rituals ("…continuously thinking if I did what I wanted to do properly" (RRQ, Male, 1/6/2010, to

the question: “If yes, what do you fear might happen?”). Attention is a necessity during the ritual action caused by anxiety to achieve this success, and the importance of the specific execution prevents the action sequence from becoming automatic (Boyer & Liénard 2006, 606). The high level of attention may also contribute to the relief of the obsessions as the ritual performance requires concentration, and the intrusive thoughts may be pushed away while performing the ritual action. Thus, the neutralization may function as thought suppression, suppressing the intrusive thoughts for the time being (Salkovskis & Campbell 1994, 1, Boyer & Liénard 2006, 606).

Thus, the ritual structure contributes to the anxiety. By not executing the ritual, the patient may feel responsible for occurring events, as this could have been avoided and “controlled” through the ritual in the patient’s view (Salkovskis 1985, 574). However, performing the ritual and neutralizing the intrusive thoughts do not reduce the intrusions, but rather the compulsions increases the obsession and intensifies the anxiety connected to the obsessions (Salkovskis, Forrester & Richards 1998, 57-58). The successful ritual, which effectively prevents and negates the thought, and thus, the feared event, results in the repetition of the ritual as well as an intensified belief in the responsibility and control of the individual. If the ritual performance “works”, the performer will have to execute the exact action sequence every time the intrusive thought occurs. Furthermore, responsibility comes with the ability to control the events through the ritual actions, as the performer is able to prevent the negative event. Another way in which anxiety is increased is connected to the successful ritual: The correct ritual is the foundation of its success, and the correct performance becomes essential to the outcome of the ritual. The intrusions are only prevented by a correct performance. If the performance does not follow the rules of the ritual, the individual will be responsible for the negative outcome (the subjective view) (Salkovskis 1985, 574). Therefore, the performance of the ritual action as neutralization of obsessive thoughts results in increased anxiety due to the particular form of the ritual required to ensure the success of the performance. The 55 year old man exemplifies how anxiety is connected to the specifics of the ritual execution (RRQ, Male, 1/6/2010). Here, the anxiety is not founded on the actual obsessive thoughts, but rather on the concerns about the anxiety (Salkovskis 1985, 574). The anxiety of the patient is not relieved and the pathological obsessions remain, and are even increased by the ritualized behavior.

> The illusion of control refers to an individual’s belief that they hold more control in a situation than is objectively present. (Moulding & Kyrios 2006, 577).

Richard Moulding and Michael Kyrios refer to the illusion of control, which is described similar to Salkovskis' term: Responsibility. The individual believe that the uncontrollable situation and the intrusive thoughts can be controlled through the ritual action (Moulding & Kyrios 2006, 574). Being able to control the outcome of a negative event or being able to prevent a disaster, the individual becomes responsible for the negation of the thoughts. OCD-patients desire for control may not meet their sense of control which causes the distress (Moulding & Kyrios 2006, 575). Feeling responsible for outcomes outside a normal control range the patient is not able to achieve the desired control by ordinary measures. Thus, the ritual action creates order from disorder as well as the illusion of controlling the uncontrollable.

7. Conclusion

The universalism of the ritual action in explained through human brain activities, according to the cognitive approach. Thus, the ritual form can be examined as a general human mental mechanism, enabling a comparison of the universal perception of the ritual action and the ritualized behavior.

The ritual behavior of OCD-patients is caused by obsessive and pathological thoughts. The ritual behavior is carried out as a result of the intrusions, but is also reinforcing the intrusive and unwanted thoughts and ideas as the success and the correctness with which the ritual has to be performed increases the anxiety of doing the ritual incorrectly and the obsessions are further reinforced with a correct and successful performance. If the ritual "works" the accomplishment of reducing anxiety or achieving the ultimate intention of the action, the importance of doing the ritual is strengthened. The obsessive thoughts cause the compulsive actions, but are themselves influenced by the performance of the actions in a continuous circle.

The intrusive thoughts are not specifically OCD-related, but the OCD-patient interprets the intrusions differently. As argued by Boyer & Liénard, a cognitive precautionary system is at work, meaning that it is universal and not exclusively connected to the OCD-patients. The patient interprets the meaning of the negative thoughts as the same as performing the negative action, and thus, the element of responsibility for the occurrence of the negative event lies with the patient. The ritual action is the attempt to prevent the negative intrusion from happening. As the "deviner" of

the Ndembu tribe are able to control and "undo" the present state or situation, the OCD-patient negates own thoughts. As the Ndembu tribe attempts to control the world through the ritual action, the ritual behavior is represented in the OCD-patients as well as the general population.

The ritual action serves to control matters that are outside the ordinary control range, and thereby, the ordinary action is insufficient. The rules and form of the ritual action is opposite the functional goal-directed action, and through the ritual the uncontrollable can be controlled. The individual's sense of control is connected to the desire for control, as the ritual action serves to increase the perception of the individual control. The ritual action is used as a means to control the world, both in religion and in OCD.

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