

A Methodology for Studying Various Interpretations of the *N,N*-dimethyltryptamine-Induced Alternate Reality

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Abstract—*N,N*-dimethyltryptamine, or DMT, is an endogenous psychoactive chemical that has been shown through repeated human subject experimentation to provide the subject with a perception of an 'alternate reality'. When administered a sufficient DMT dose, subjects have reported the presence of intelligent beings that do not appear to be the projections of their subconscious in the Freudian sense. Furthermore, and of particular interest to this article, many subjects believe that the perceived alternate reality is persistent in that it exists irrespective of their subjective momentary perception. Past research into the DMT-induced alternate reality comes solely from subject testimonies and to date, no analysis has been conducted to understand the objective aspects of these extraordinary subjective claims. This article provides a methodology for studying the nature of the DMT-induced alternate reality by means of various simple information theory experiments. These experiments can be used to test which of the presented interpretations of the DMT-induced alternate reality appear most plausible.

Keywords: DMT — Alternate — Reality — Hallucinogen — Alien Encounter— Parallel Universe

1. Introduction

N,N-dimethyltryptamine, or DMT, is a fast acting, short lived psychoactive chemical that is part of the tryptamine family of psychedelics (Kaplan et al., 1974; Shulgin, 1976). DMT was first synthesized in 1931 by Manske (Manske, 1931). Exogenous DMT can be consumed either by smoking, snorting, ingesting, or injecting (intramuscular or intravenous) it, but unlike related psychedelic chemicals such as lysergic acid diethylamide (LSD) (Hofmann, 1983) and psilocybin (Heim & Wasson, 1958), DMT is an endogenous substance (Barker et al., 1981) suspected to be synthesized by the pineal gland (Strassman, 1991).

To date, the most extensive large-scale U.S. Food and Drug Administration (FDA) and U.S. Drug Enforcement Agency (DEA) approved human subjects testing research to be conducted using DMT took place at the University of New Mexico in the early 1990's under the primary investigation of Rick Strassman

M.D. (Strassman, 2001). Strassman made use of 60 normal (i.e. non-psychiatric) volunteer subjects and over 400 intravenously administered DMT doses during the 5-year study. Of particular interest to this article is the personal testimonies provided by the human subjects after each administered dose. Twenty percent of Strassman's volunteers, usually at a 0.4 mg/kg intravenous dose, reported an 'alternate reality' in which seemingly intelligent beings existed. Furthermore, similar testimonies regarding the perception of alternate alien realities has been published by other DMT-oriented research projects (Sai-Halasz et al., 1958; Szara, 1989). It has been speculated that the popular accounts of alien abduction may be caused by the unregulated release of endogenous DMT by the 'abductee' (Strassman, 2001). Whether this alternate reality is a complete hallucination (i.e. a purely subjective synthesis of the human mind) or an actual objective reality is unknown. To date, the various interpretations of the DMT experience are left solely to personal belief. For those that have not had direct experience with the DMT-induced alternate reality, all that exists for formulating one's opinion is the extensive pool of human subject testimonies published in research manuscripts, popular science books, and on the world wide web.

When intoxicated by DMT, the mind finds itself in a convincingly real, apparently coexisting alien world. Not a world about our thoughts, our hopes, our fears; rather a world about the tykes—their joys, their dreams, their poetry. (McKenna, 1992, p. 262)

The purpose of this article is to provide an experimental methodology for objectively studying three interpretations of the DMT-induced alternate reality. The three interpretations are 1) an inconsistent subjective hallucination, 2) a consistent subjective reality, and finally, 3) an objective co-existing alternate reality (Heelan, 1983; Meyer, 1992). Two information theory experiments are presented that can be used in future human-based DMT research to test which interpretation appears most plausible. The successful implementation of the various experiments is not without some difficulty. Given the level of intoxication of the human subjects, the unknown physics of the alternate reality, the seemingly different culture of the alien beings, and the short period of time a subject has to interact with the beings, the variables against a clear signal transmission, interpretation, and return of results all reduce the probability of a successful experiment. Therefore, this article will also address the requirements of the information passed and the necessary training/experience of the chosen subjects.

2. Related Research

Unfortunately, even with the numerous astoundingly consistent reports of DMT-induced alien experiences across many DMT research agendas, no research to date has attempted to study the nature of this 'reality'. While the objective physiological effects and the subjective psychological effects of DMT are well known, the universe 'rules' governing the pure hallucinatory state of

DMT inebriation are lacking. The similarity of reports among DMT subjects poses larger questions as to the source of these seemingly far-fetched tales. Is the DMT-induced alternate reality purely a synthesis of the human mind, or does the DMT reality have the characteristics of an objective place? Human subject testimony isn't sufficient for validating which of the many interpretations of this hallucinatory state is most plausible. Anecdotal tales and subjective belief should be circumvented when attempting to understand which interpretation of the DMT-induced alternate reality is most plausible.

In the mid-1960's Timothy Leary made use of an engineered 'experiential typewriter' (Leary, 1965) to allow inebriated subjects to report back particular events during their DMT experience (Leary, 1966). While insightful as to the timing of the various phases of the experience (e.g. onset, encounter, comedown), the results of these experiments only provide a real-time subjective assessment of the experience. This experimental methodology only provides a more objective understanding to the course of events during DMT inebriation.

Strassman, in his early 90's study, made limited use of electroencephalography (EEG) and functional magnetic resonance imaging (fMRI) technology, though he was unable to correlate the response from the devices and the testimonies of the subjects (Strassman, 2001). On the other hand, Jordi Serrano's EEG analysis reports that the human subjects, when given an ingested monoamine oxidase inhibitor (MAOI) DMT concoction, are in an alert and aroused state during inebriation (i.e. low delta and theta activity) (Serrano, 2003). These recordings are correlated with user experience in that most subjects report excitement and anxiety—large DMT doses tend not to induce a calm meditative state. However, lower doses of DMT do produce a calm and relaxing effect (Jacob & Presti, 2005). Currently, no positron emission tomography (PET) scanning during DMT inebriation has been reported in the literature. Even with such recording and brain imaging devices, these technologies are unable to expose the type of information this article proposes to capture, such as whether the DMT hallucination is a perception of an objective reality.

3. The Phases of the DMT Experience

The DMT experience (without the use of MAO inhibitors) is short lived in comparison to other psychedelics of the tryptamine family—from onset to comedown, approximately 20 minutes. The time frame of the different experiential phases of the DMT experience varies between individuals and according to the method of DMT administration. What is presented is what can be approximately expected from a relatively high dose of either smoked (i.e. approximately 30–50 mg/three full inhalations) or intravenously (i.e. 0.4 mg/kg) administered DMT (see Figure 1).

The initial onset of the DMT experience is rapid and usually occurs before the extremely intoxicated individual can take the third and final necessary inhaled dose to move beyond the 'veil' (McKenna, 1992) or before the intravenous line

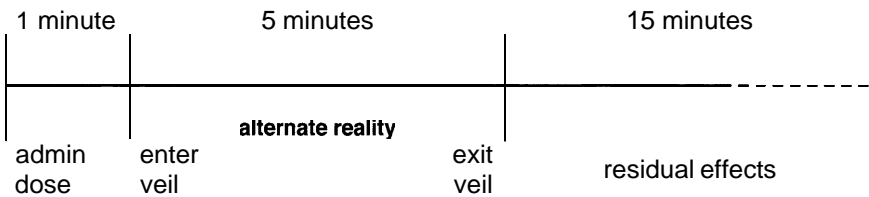


Fig. 1. Phases of the typical high-dose DMT experience.

can be flushed with a saline solution (Strassman et al., 1994). The typical DMT experience begins with the subject reporting intense psychedelic, kaleidoscope visualizations with the presence of a loud humming, or buzzing, noise. With a strong enough dose or a focused concentration on the part of the subject, the subject may be able to bypass this colorful two-dimensional veil and enter into the alien inhabited alternate reality.

There is nothing that can prepare you for [the DMT experience]. There is a sound, a bzzzz. It started off and got louder and louder and faster and faster. I was coming on and coming on and then POW! There was a space station below me and to my right. There were at least two presences, one on either side of me, guiding me to the platform. (Strassman, 2001, p. 189)

Within the alternate reality, beyond the classic psychedelic veil experience, is where encounters with alien beings are reported. What is interesting about this aspect of the DMT experience is the complexity of interaction between the subject and the DMT beings,

They were pouring communication into me, but it was just so intense. [...] There was something outlined in green, right in front of me and above me here. It was rotating and doing things. She was showing me, it seemed like, how to use this thing. It resembled a computer terminal. I believe she wanted me to try to communicate with her through that device. (Strassman, 2001, p. 209)

the seeming scientific complexity of the beings,

There were insect-like creatures everywhere. They were in a hyper technological space. (Strassman, 2001, p. 209)

I felt like I was in an alien laboratory, in a hospital bed like this, but it was over there. A sort of landing bay, or recovery area. There were beings. I was trying to get a handle on what was going on. (Strassman, 2001, p. 196)

and the autonomy of the entities.

They had a space ready for me. They weren't as surprised as I was. [...] There was one main creature, and he seemed to be behind it all, overseeing everything. (Strassman, 2001, p. 197)

I was aware of many entities inside the space station—automatons, android-like creatures [...] they were living beings, not robots. [...] They were doing some kind of routine technical work and paid no attention to me. (Strassman, 2001, p. 189)

Though the DMT experience lasts approximately 20 minutes, only about 5 of those minutes occur behind the veil and within the alternate reality. It is in this alternate reality that most subjects report contact with the DMT entities and therefore it is during this 5 minute window when communication with the DMT beings can occur. This is the point of the subjective experience where objective analysis must take place in order to verify or falsify the three interpretations presented next.

I told [the being] "I can't go with you now. See, [the doctors] want me back." It didn't seem offended and, in fact, it 'followed' me back until I sensed it had reached its boundary. I felt like it was saying good-bye. (Strassman, 2001, p. 213)

4. Three Interpretations of the DMT-Induced Alternate Reality

This section discusses three interpretations of the DMT-induced alternate reality. These interpretations run the gamut from DMT being a psychoactive molecule that provides a complete hallucination (i.e. a full sensory hallucination) to DMT acting as a gateway to a co-existing alien reality. First, the DMT experience can be interpreted as a hallucination where the human subject synthesizes the elaborate experience each time DMT is administered (i.e. an inconsistent subjective reality). In this sense, the DMT-induced reality is not persistent in that the alternate reality cannot exist without the momentary perception of the DMT inebriant. Furthermore, it is inconsistent in that repeated doses of DMT do not have correlated responses within the individual human subject (e.g. recurrent experiential themes). In this case, the DMT-induced perception would be akin to the states perceived while on other psychoactives such as LSD and psilocybin. However, unlike LSD and psilocybin, the subject is experiencing a complete hallucination (i.e. a purely synthetic world) and not simply a distortion of their perceptual mechanisms (e.g. 'melting walls' and visual trails).

It was pretty weird, but I figured it was just the drug. (Strassman, 2001, p. 193)

Second, the alternate reality could be a consistent subjective hallucination in that the DMT experience is persistent only to the individual human subject. This means that the subject may return to the DMT-induced alternate reality and perceive recurrent themes (e.g. same beings, similar conversations), but that perception is privy only to the isolated individual and does not occur across all subjects. This interpretation could imply that there exists some subconscious mechanisms facilitating the persistent personal experience. Whether that mechanism is solely biological (e.g. stimulating particular fundamental, or low-level, areas of the brain associated with the representation of humanoid beings) or psychological (e.g. stimulating high-level cortical regions associated with one's life experiences) are two potential sub-hypothesis of the falsification of the consistent subjective reality as being a co-existing objective alien reality.

This time, I quickly blasted through to the 'other side'. Suddenly beings appeared. They were cloaked, like silhouettes. They were glad to see me. They indicated that they had had contact with me as an individual before. (Strassman, 2001, 214)

I went directly into deep space. They knew I was coming back and they were ready for me. (Strassman, 2001, p. 215)

Finally, the DMT-induced alternate reality may be an objective reality that is persistent irrespective of the perceiving individual and therefore is the same reality being experienced by all DMT inebriants (i.e. a co-existing world, a true alternate reality). Though being the most extraordinary interpretation, as will be shown, this interpretation may be the easiest to validate.

You can choose to attend to this or not. It will continue to progress without you paying attention. You return to where you left off, but to where things have gone since you left. Its not a hallucination, but an observation. (Strassman, 2001, p. 195)

5. Testing the Various Alternate Reality Interpretations

This section will describe the experiments necessary to test the various interpretations of the DMT-induced alternate reality. The first interpretation, an inconsistent subjective interpretation (i.e. a hallucination) requires individuals who are not familiar with DMT nor what to expect from an administered dose, and thus can be coached to interpret their experience contrary to what other more experienced DMT users report. The second interpretation, the consistent subjective interpretation, assumes that the DMT-induced alternate reality is a non-random, non-mentally contained reality (i.e. the experience is generated from features outside the individual's mind) and thus can be used for information storage. Validation of this hypothesis comes by means of a computation within the alternate reality. If the alternate reality can compute information then the DMT-induced alternate reality is, in fact, a co-existing world—though that existing world may be a co-existing subjective world (i.e. a personal reality), not an objective co-existing world (i.e. a collective reality). However, if not, then two sub-hypotheses emerge. Does DMT act at the biological or psychological level—where biological effects occur due to specific neural sites being activated and psychological effects occur because of the subject's life history? In other words, what mechanisms of the brain is DMT acting on in order to create the fanciful endogenous experience? It is noted that the distinction between the biological and psychological level is blurry. Finally, the third, and last, interpretation will assume that the DMT-induced alternate reality is a purely objective reality that all human subjects access during DMT inebriation. In this sense, it should be possible to transmit information between human subjects within the alternate reality. The distinction between the second and third test is to determine whether information can be transmitted between humans in the alternate reality.

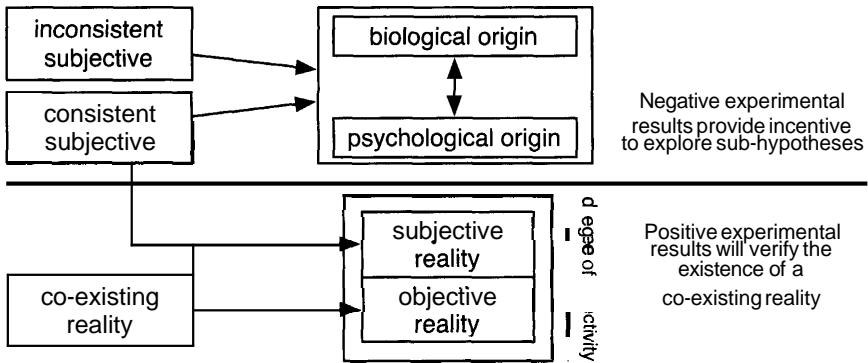


Fig. 2. The various hypotheses of the DMT-induced alternate reality.

Transmission between humans guarantees an existing objective channel of communication. Figure 2 outlines the various hypotheses for ease of reference.

5.1. Inconsistent Subjective Interpretation Experiment

Hypothesis: The DMT-induced alternate reality is an inconsistent subjective hallucination and therefore does not persist without the momentary perception of the inebriated human subject.

To validate or falsify this hypothesis, the experimenter should perform a single blind study in which human subjects are used who have never heard of DMT and its extraordinary effects on the human psyche. These subjects are told that DMT inebriation will provide them solely a visual and auditory hallucination. By simply defining the experience as that experienced in front of the veil, the ill-informed subject will have no preconception as to what is possible given the right conditions for entering into the DMT-induced alternate reality. If subjects continually return only to describe the world in front of the veil, then it can be concluded that the DMT experience can be influenced by biasing the subject. In this sense, the hallucination is driven by preconceptions and therefore may be understood solely as an inconsistent subjective hallucination. On the other hand, if the inexperienced human subjects return with testimonies of encounters with alien beings, then, as it has been repeatedly shown, DMT is responsible for alien entity experiences (Strassman, 2001). It is noted that this experiment has already been implemented with positive results. Dr. Strassman's work used unassuming human subjects that did, in fact, return from DMT inebriation with entity experiences (Strassman, 2001).

The less provocative, and potentially more plausible explanation for entity experiences may be that DMT acts on regions of the brain responsible for representing humanoid forms. That is to say that DMT is responsible for rendering

a humanoid being devoid of a personality 'inscription' from the human's normal waking associations (i.e. a nameless face). In this sense, DMT is working at the 'biological' level with limited reference to higher psychological associations.

On the other hand, the entity experience may be generated exogenous to the individual. For this hypothesis, it is important to see if while in this alternate reality, the humanoid entities can function as autonomous beings. If the entities are autonomous, and thus require no computation on the part of the inebriated subject's cognitive faculties to function, then it holds that exogenous information is being impinged on the human subject (i.e. the experience is rendered external to the individual and is being perceived, not generated by the individual). A proof of this nature would lead one to suspect that the DMT-induced alternate reality is in fact a co-existing reality. Such proof is difficult to achieve due to the fact that during REM sleep states, humanoid entities appear to be functioning autonomously within the individual's dreams. However, DMT provides humans with the unique experience of a lucid dream-like world in which the human subject is less removed from their normal waking realization. It is exactly this reaction that will allow one to interact with the entities in a controlled, experimental manner.

5.2. Consistent Subjective Interpretation Experiment

Hypothesis: The DMT-induced alternate reality is a subjective persistent co-existing reality.

In order to test whether the DMT-induced alternate reality is consistent to the human subject, it is necessary to determine if the alternate reality can hold and compute information independent of momentary observation. To hold information that can be objectively verified requires a computation on the part of the DMT beings since placing information into the alternate reality and retrieving the same piece information can be explained simply by a functioning human memory. Therefore, the inputted information must be transformed in a non-random manner and the results of the transformation must be retrieved for analysis. This requires that the human subject provide the DMT beings with a piece of information and a simple function to compute on that information. To ensure that this computation occurs external to the individual and within the alternate reality, the computation must be complex enough such that no normal human subject (except potentially a savant) could yield a solution alone. One such computation is the prime factorization of a large digit non-prime number.

For review, a prime number is any number that can be divided only by itself and 1 without incurring a remainder in the process. The fundamental theorem of arithmetic states that every natural number greater than one is either a prime number or can be represented as the unique product of a set of prime numbers (Baker, 1984). For example, the number 26, which is not a prime itself, can be expressed as the product of the two prime numbers, 2 and 13. Obviously, the prime factorization of 26 can be determined easily by the human subject using only their

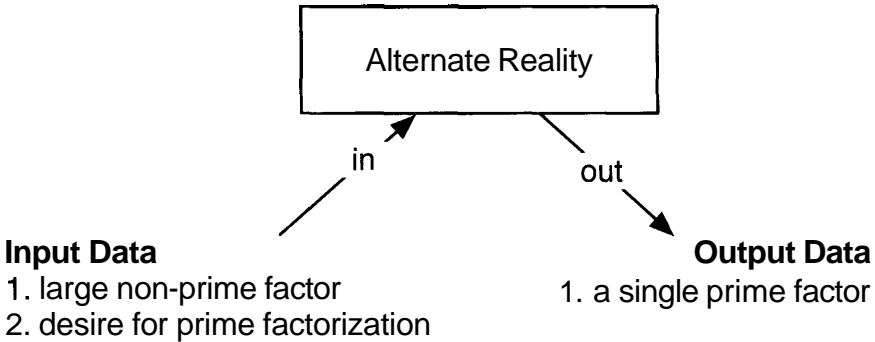


Fig. 3. Studying computation in the alternate reality with prime factorization.

internal cognitive faculties. Therefore, to test for a co-existing reality, prior to DMT inebriation, the individual must memorize a large non-prime number (e.g. 23,467). The non-prime chosen must require the use of a technologically advanced space to determine the prime factors ($23,467 = 31 \times 757$).

In his classic psychology paper, George Miller demonstrates the fact that most individuals can only memorize items that are composed of less than 7 ± 2 'chunks' of information (Miller, 1956). With the potential for dissociation during inebriation, it might be necessary to provide a large digit number that not only has a small number of prime factors (<3), but also can be recalled by the human subject while in the DMT-induced alternate reality. For example, the number 11,111 is composed of the primes 41 and 271. Or 1,111,111 is the product of 239 and 4649. Similarly, $122,333 = 71 \times 1723$.

All non-prime numbers are not simply the product of two prime numbers (e.g. $12,345 = 3 \times 5 \times 823$). The reason to choose a non-prime that is the product of two primes is that the human subject need only remember one of the prime numbers to have solved the function. For instance, if the chosen non-prime number is 11,111, then the inebriated human subject need only retrieve one of the prime factors from the alternate reality (e.g. $11,111/41 = 271$).

The goal of the human subject is to communicate not only the large digit non-prime number, but also the desire for the DMT entities to compute the prime factorization on that number. Given numbers with 7 ± 2 digits, our current algorithms can determine the prime factors in fractions of a second. Therefore, if the DMT entities are able to compute this function and provide the solution to the human subject within the five minute window, then the DMT-induced alternate reality can be said to contain intelligent entities or is able to expand the inebriated individual's mathematical faculties to levels that are not possible during normal states of consciousness. This experimental computation is represented in Figure 3.

To validate a persistent reality (i.e. a stable co-existing reality), it is important that the inebriated human subject not return with the prime factors. Instead, the human subject asks the beings to not repeat the answer and to provide the answer

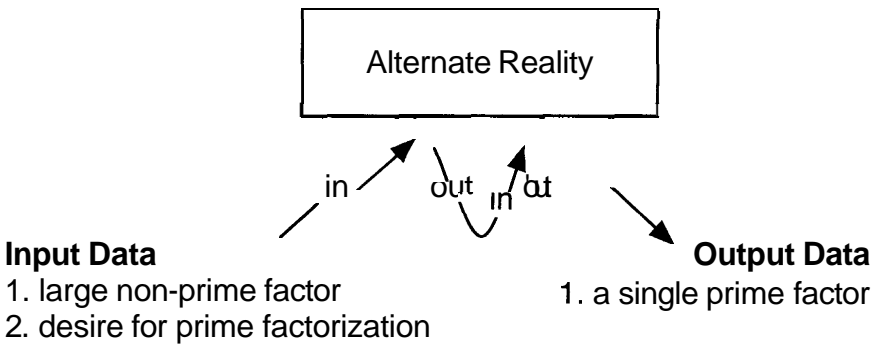


Fig. 4. Studying persistence in the alternate reality with prime factorization.

when the human subject returns to the alternate reality. Therefore, this test for persistence requires at least two sequential DMT administrations to the same human subject. The first inebriation provides the DMT beings a large non-prime number to factorize. The second inebriation requires the human subject to retrieve the factor solutions. This experiment is represented in Figure 4.

If the non-prime number is large enough, and therefore takes longer to compute (according to our knowledge of prime factor algorithms) then it may be possible to say that the DMT-induced alternate reality was computing the answer during the time the individual was not existing behind the veil. Therefore, not only would persistence be shown, but progression as well. There are many problems with verifying progression. For one, unlike matter which evolves according to constant rules (known physical laws), information evolution is dependent upon the acting algorithm for which we constantly discover more. Therefore, if we don't know the algorithm used by the DMT beings to compute the prime factors, then it is difficult to know the nature of time in the DMT-induced alternate reality.

5.3. Co-Existent Reality Interpretation Experiment

Hypothesis: The DMT-induced alternate reality is an objective persistent co-existing reality.

Testing for complete objectivity and, therefore, to determine if the DMT-induced alternate reality is a persistent co-existing alternate reality, a simple *information in/information out* experiment using two human subjects can be performed. One version of this experiment requires no manipulative computation on the part of the DMT beings except simply maintaining an exact replica of the information provided (i.e. information storage). On the other hand, to remove the potential interpretation that DMT may provide the human subject with a form of extra sensory perception (ESP) (Roll 1989), it is best to have the alien entities compute the prime factors of a large non-prime number.

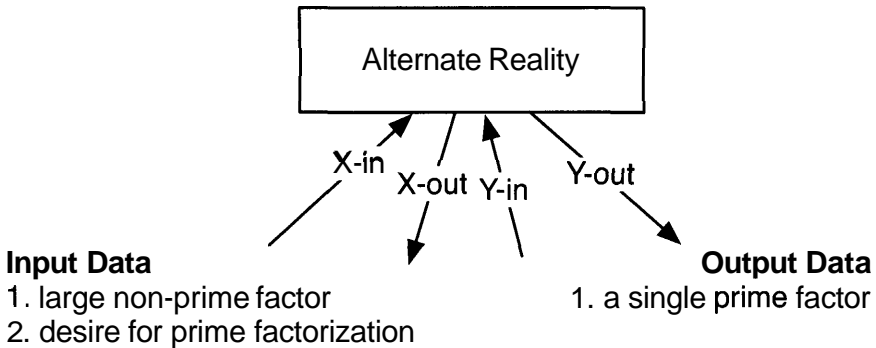


Fig. 5. Studying objective reality through information storage and retrieval.

The proposed experiment requires two human subjects which will be called human X and human Y. Human X will enter the alternate reality and provide the DMT beings with a large non-prime number known only to him or herself. Once human X has provided the DMT beings with the large non-prime number and the desire for a prime factorization, then human X returns from the alternate reality. Next, human Y is inebriated and attempts to retrieve one of the prime factors of the large non-prime number from the DMT entities. If human Y returns with a valid prime, then the hypothesis is validated and it can be said the DMT-induced alternate reality is an objective persistent co-existing reality that every human subjects 'goes to' while inebriated on DMT (Figure 5).

Assuming that the DMT-induced alternate reality is home to a population of alien beings, then given that there is no known information as to the size of the population, the 'physical' size of the DMT world, nor their internal communication infrastructure, it may be difficult to get a positive result from this experiment. For instance, imagine the reverse scenario. Imagine if these alien beings were using a psychoactive chemical in their world to appear in ours. These beings may be appearing in very different coordinates of our physical space. This may be as small as different areas of our planet, or as problematic as different areas of our known universe. Therefore, if human X is to route information to human Y by means of the alternate reality, then it is necessary that the DMT beings have the appropriate communication infrastructure to ensure that the message is passed from wherever human X appears to wherever human Y appears in the coordinate space of the alternate reality. Given the seemingly technologically advanced nature of these beings, this might not be a problem. However, given that the rules governing the DMT-induced alternate reality are little known, it is difficult to assume that our interpretation of our reality is a fit model within their reality. Though this experiment provides a sound validation of an objective reality, there exist many potential experimental noise sources as will be described in the next section. Fortunately, a single positive result is guarantee enough that an objective DMT reality does exist.

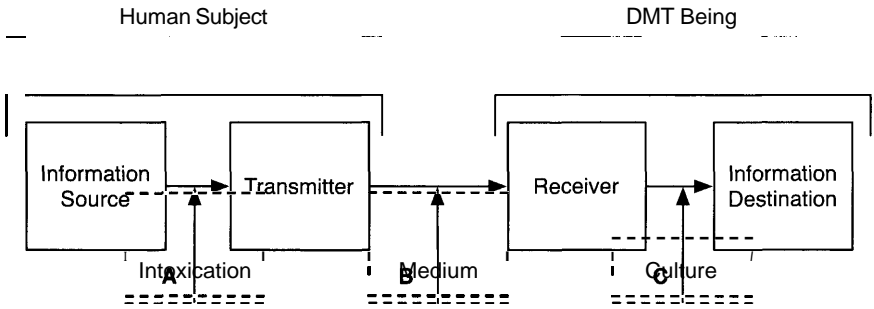


Fig. 6. Potential noise sources in the DMT-induced alternate reality.

6. Sources of Experimental Noise

This section will discuss some potential noise sources of the various experiments. When the subject is injected with approximately a 0.4 mg/kg dose of DMT, the subject, if able, will break through the DMT visual veil and enter the alternate reality of the DMT beings. It is here that the subject will interact with the DMT beings. There are many obstacles that will effect a clear positive result of the experiments to follow (see Figure 6).

First, the individual will be extremely intoxicated by the DMT dose and therefore may not be able to effectively transmit the proper experimental information to the DMT beings (Figure 6 noise source A). Second, the environment separating the inebriated subject and the beings may not be conducive to signal propagation (Figure 6 noise source B). Finally, due to the difference in culture between the human subject and the DMT beings, the beings may not be able to interpret the signal appropriately (Figure 6 noise source C). Figure 6 is a modification of Claude Shannon's diagram of a general communication system (Shannon 1948) where noise sources A and C are introduced to account for human intoxication and alien cultural interpretation, respectively. Finally, the experiments require bi-directional communication. Therefore, the reverse process will incur further potential for error. The following subsections will elaborate on each potential noise source.

It should be noted that the alien experience is not the only reaction that humans have while under DMT inebriation. Within the various classes of experiences, a distinction can be made between intra-personal and inter-personal experiences. An intra-personal DMT experience is one in which the human subject experiences events related solely to their life events. For example, many subjects report various subconscious associations with life-long traumas (Strassman, 2001). While such intra-personal experiences are purely subjective, there does exist a class of inter-personal experience which points to the hypothesis that DMT actually provides the inebriated individual with an experience of an objective co-existing alternate reality. Therefore, it is important to seek those human individuals who consistently have alien entity experiences as subjects for the experiments outlined in this article.

6.1. Noise Source A and Human Intoxication

The role of the human subject is to input and retrieve information into the DMT-induced alternate reality. For the purposes of these experiments, it is assumed that this information must be stored and computed by the cognitive faculties and technology of the DMT beings. Therefore, this requires communication with the beings. It is important that when in the DMT-induced reality, the subject is able to remember their purpose for entering and recall the information that must be transmitted for the experiment. Though this may seem simple enough, the dissociative feeling and anxiety experienced on DMT may make such a simple cognitive task difficult. Fortunately, even though DMT is an extremely potent psychoactive, many subjects report that once through the veil and in the alternate reality, there is a complete sense of sobriety.

When I'm in there, I'm not intoxicated. I'm lucid and sober. (Strassman, 2001, p. 195)

It was incredibly un-psychedelic. I was able to pay attention to detail. (Strassman, 2001, p. 197)

This question about "being high"—I don't know. I had my capacities. I was able to observe quite clearly. I didn't feel stoned or intoxicated; it was just happening. (Strassman, 2001, p. 207)

Even with subjects reporting a clear sense of rational thinking, there is still confusion and anxiety towards the undoubtedly bizarre experience. Therefore, it is important that the subjects chosen for the experiments are comfortable with the effects of DMT.

I communicated with them but there wasn't enough time. I was so strung out, excited, agitated when I arrived there. They wanted to try and reduce my anxiety so we could relate. (Strassman, 2001, p. 190)

When they were on me, there was a little bit more confusion than fear. Kind of like, "Hey! What's this?!" And then there they were. There was no time for me to say "Who the hell are you guys? Let's see some ID!" (Strassman, 2001, p. 199)

For consistent subjective and objective interpretation testing, then like Strassman's chosen subjects, it is important to include subjects that are experienced with DMT or other psychoactives of the tryptamine family. A completely inexperienced subject experiencing the dissolving of their known world would incur a fear, confusion, and anxiety so great that the potential for a successful signal transmission would be reduced. However, unlike Strassman, the goal of these experiments is not to test the effects of DMT on a wide demography. Instead, it is important to communicate quantifiable information to the beings of the alternate reality. Therefore, these experiments are independent of the subjective experience and therefore only those individuals that can perform at the required level should be sought. For the proposed methodology, a large subject pool is unnecessary since a single successful result is sufficient for validation.

Unlike other psychedelics, DMT has been shown to not induce a physical tolerance in the human subject (Strassman, 1996; Strassman et al., 1996) and so

can be used repeatedly by the subject without a waning effect. In fact, repeated dosing was necessary in some instances for the subjects to feel less anxious towards the experience (Strassman, 2001). This comfort, through experiential habituation, may allow the subject to transmit the experimental information effectively and thus would reduce the negative effects of noise source A.

6.2. Noise Source B and the Information Medium

The second noise source is noise source B in Figure 6. In standard information science, this is noise impinged upon a signal due to various external disturbances. In the DMT alternate reality, the 'physics' are unknown. From various testimonies, it appears that communication between human and alien occurs through some form of telepathy or manipulation of complex objects. There is definitely a visual communication medium, but many reports demonstrate a lack of coherent auditory transmission.

There was an initial sense of panic. Then the most beautiful colors coalesced into beings. There were lots of beings. They were talking to me, but they weren't making a sound. (Strassman, 2001, p. 190)

It also appears that the beings are able to read thoughts. When a subject thought that she was dying, she repeated over and over to herself: "at least there is God." The beings' reaction was:

"Even here? Even here?" was not spoken in words. It was an empathetic communication, a telepathic communication. (Strassman, 2001, p. 207)

Given that many subjects state that the DMT beings are able to interpret their thoughts, non-auditory information transmission may come by means of the human subject repeating the necessary information as a 'looped' thought process (i.e. a constant internal repeating of the information to be transmitted).

There was the usual sound: pleasant, a roar, a sort of an internal hum. Then there were three beings, three physical forms. There were rays coming out of their bodies and then back to their bodies. They were reptilian and humanoid, trying to make me understand, not with words, but with gestures. [...] Once I established what they were communicating, they didn't just fade away. They stayed there for quite a while. Their presence was very solid. (Strassman, 2001, p. 191)

6.3. Noise Source C and Entity Interpretation

I'm aware of them and they're aware of me. It's like they have an agenda. It's like walking into a different neighborhood. You're really not quite sure what the culture is. It's got such a distinct flavor, the reptilian being or beings that are present. (Strassman, 2001, p. 189)

The final noise source is alien interpretation. The DMT beings that are being interacted with are definitely odd in nature. Many describe them as humanoid

entities that communicate with gestures, telepathy, and complex mutating objects. Do these entities understand the concepts that we use to describe our world? Are they familiar with mathematics?

It started out typically as DMT but then I went past it, beyond where I've been on DMT. There is that ringing sound as you're getting up there, and then I went to the language or number thing. [...] The first number I saw was 2 and I looked around and there were numbers all around. They were separate in their little boxes, and then the boxes would melt and the numbers would all merge together to make long numbers. (Strassman, 2001, p. 179)

It has been repeatedly reported that the DMT beings appear to be technologically advanced and therefore may have a strong sense of the model we use for describing our reality (i.e. our scientific paradigms). Some reports have stated that the beings were excited that we had discovered the DMT technology and were hopeful that we, as a species, would learn how to stay behind the veil for longer periods of time. These reports allude to the intelligence of these beings and therefore, the DMT entities may be able to manipulate information represented within our constructs (e.g. base 10 numbers and prime factorization algorithms).

There was a human, as far as I could tell, standing at some type of console, taking readings and manipulating things. He was busy at work, on the job. I observed some of the results on that machine, maybe from my brain. (Strassman, 2001, p. 194)

7. Extending Time Behind the Veil

They told me there were many things they could share with us when we learn how to make more extended contact. (Strassman, 2001, p. 215)

This section provides only speculation as to the necessary mechanisms to extend the subject's time within the DMT-induced alternate reality and therefore, their time with the DMT beings. 3,4-dihydro-7-methoxy-1-methyl-b-carboline, or hamaline, is a MAO inhibitor that blocks enzymes that metabolize DMT in the human system. This substance is known to destroy MAO in the human gut, thus allowing the DMT to be ingested as the popularly known ahuyausca brew (Grob et al., 1996). The constant administration of DMT through an intramuscular or intravenous infusion pump after the subject had received their initial DMT dose seems like a plausible mechanism for extending contact due to the lack of tolerance seen in repeated DMT administrations (Strassman et al., 1996). However, due to the intensity of DMT and a prolonged high-dose experience, it may be desirable to administer an anxiolytic (i.e. a sedative) to ease the subject into the extended DMT session. The anxiolytic should be administered in a sufficient amount to calm, but not distort the cognitive faculties of the subject. Again, these ideas are only speculative and their effects (harmful or helpful) are untested.

By extending the human subject's time behind the veil, subjects will have more time to get acquainted with the DMT-induced alternate reality and may be able to learn how to manipulate the environment such that more complex experiments may be able to take place. What these future experiments will look like can only be determined once particular interpretations of the DMT-induced alternate reality are validated or falsified.

8. Conclusion

DMT is an extraordinary psychoactive in that it is one of the few known chemicals that can produce a full sensory hallucination in humans. Furthermore, of those psychoactives that produce a complete hallucination, DMT seems to provide the most vivid and extraordinary experience. It is this aspect of DMT that has many individuals believing that the DMT experience is actually a perception of an objective co-existing reality inhabited by alien beings. The many subjective testimonies of a science-fiction-like world beg the psychedelic research community to further study what is actually happening during DMT inebriation. DMT, unlike other psychoactives, either provides a fascinating glimpse into the power of human imagination or a glimpse into an alternate alien reality.

They seemed pleased that we had discovered this technology [DMT]. I felt like a spiritual seeker who had gotten too far off course and, instead of encountering a spirit world, overshot my destination and ended up on another planet. (Strassman, 2001, p. 214)

If DMT provides only a complete subjective hallucination then can the experienced alternate reality drive novelty in ours? Like LSD and other hallucinogens, can DMT (as simply a hallucinatory psychoactive) yield functionality in the individual that is difficult to attain in normal waking consciousness (Stafford & Golightly, 1967)? Or, at the other side of the spectrum, if DMT provides humans with the ability to tunnel to an alternate reality, can novel information be harnessed and brought back to our world?

DMT has shown me the reality that there is infinite variations on reality. There is the real possibility of adjacent dimensions. It may not be so simple that there's alien planets with their own societies. This is too proximal. It's not like some kind of drug. It's more like an experience of a new technology than a drug. (Strassman, 2001, p. 195)

To date, there is no generally accepted interpretation of these subjective testimonies. Given the DEA Schedule 1 status of the DMT molecule, in depth research in the DMT-induced alternate reality is difficult and usually can only be conducted from the standpoint of the medical research agenda. What has been proposed in this article is devoid of a medical agenda and is not interested in the human subjects (their spiritual enlightenment, personal interpretations, nor physical reactions). Instead, this proposed methodology is interested solely in understanding the objective nature of the DMT-induced alternate reality. Given

a clearer picture of what the DMT-induced alternate reality is, it will be possible to design more advanced experiments. Can this alternate reality be used to compute complex functions and/or provide our scientific program with a new tool for studying consciousness? Only through experimentation can such questions be answered.

DMT is not one of our irrational illusions. I believe that what we experience in the presence of DMT is real news. It is a nearby dimension—frightening, transformative, and beyond our powers to imagine, and yet to be explored in the usual way. We must send fearless experts, whatever that may come to be, to explore and report back on what they find. (McKenna, 1992, p. 259)

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Comment on "A Methodology for Studying Various Interpretations of the *N,N*-dimethyltryptamine-Induced Alternate Reality"

Hallucinogenic, or psychedelic, drugs reliably induce in humans a characteristic syndrome of altered consciousness in which nearly all mental faculties are affected: cognition, perception, emotion, sense of self, and volition. While the often florid nature of their sensory effects has caused us to focus, perhaps inordinately, on their "hallucinogenic" properties, other aspects of the mind also are profoundly modified. Classical hallucinogens include LSD, mescaline, and psilocybin (1).

DMT is a powerful short-acting classical hallucinogen that occurs in a multitude of plants, and in all mammals, including man. The isolation and preliminary characterization of the gene that transcribes the DMT-synthesizing enzyme have shed new light on the regulation of this unique endogenous compound (2).

DMT became a relatively minor drug of abuse soon after the discovery of its psychoactivity by Hungarian psychiatrist Stephen Szara in the mid-1950s (3). DMT also is the visionary ingredient in the Amazon brew *ayahuasca*, and as contemporary use of this brew increases, so will Western exposure to DMT (4).

Psychiatric research with DMT began in the 1950s and lasted until the early 1970s, at which time all clinical research with these drugs ceased because of regulatory factors. DMT was the focus of the first new U. S. clinical research with psychedelics in 20 years (5), coinciding with a resumption of European studies using mescaline (6). Our studies with DMT characterized multiple biological variables and developed a new rating scale to quantify psychological effects. In addition, we paid very careful attention to volunteers' descriptions of their DMT experiences (7,8).

Nearly half of our volunteers described the experience of coming into contact with autonomous sentient "beings" while under the effect of a high dose of DMT. These beings seemed to inhabit a "parallel" ongoing reality (9). The consistency and frequency of these reports by our volunteers are perplexing, and one is hard-pressed to offer definitive explanations as to their bases. Three hypotheses for these experiences are suggested by Rodriguez in the preceding paper:

- 1) They are solely products of the volunteer's mind—that is, they are hallucinations;

- 2) They occur in a non-consensually validated, but seemingly objective reality;
- 3) They occur in a consensually validated, seemingly objective reality.

Giving credence, or even consideration, to theories 2) and 3) may appear to some as fundamentally suspect. That is, are we going even deeper into some psychedelic delusional thinking process? Or, are we applying the scientific method to areas into which no one has cared or dared to take it previously?

We have taken the first step in resuming human studies with hallucinogens. Given this opportunity, how are we to deal with the novelty of the full psychedelic experience?

There are several ways to profess thoroughly investigating the "psychedelic" experience without really doing so. It is important to be alert to these issues when appraising results generated from contemporary human studies. One is to keep the doses of drugs rather low. For example, German (10) and Swiss (11), as well as U. S. (12), studies with psilocybin use doses of this drug that are one-half to one-quarter those we found in our preliminary studies necessary to elicit a "psychedelic" level of intoxication. Another is to focus on non-subjective effects, such as brain imaging, and other biological variables. Lastly, to limit those descriptions to quantifiable rating scales and ignore the substance of the reports obtained in the clinical interview situation when describing subjective effects.

In order to merit considering our resumption of human studies as an advancement, rather than merely a repetition, of previous research, we must contribute something novel to the field of human consciousness through these studies. We can do this by confronting directly some of the truly paradigm-challenging findings that previous researchers could not adequately integrate into their extant scientific world views.

This process, however, may teeter dangerously on the razor's edge of "respectable" vs "pseudo-" science. Nevertheless, we cannot avoid taking some conceptual risks when attempting to explicate the seemingly inexplicable. Perhaps this may mean we will need contributions from our non-clinical colleagues, such as computational cognitive scientist Rodriguez, who have greater freedom to consider experiments and processes which stretch the framework and language of clinical investigators.

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Comment on “A Methodology for Studying Various Interpretations of the N,N-dimethyltryptamine-Induced Alternate Reality”

This is a very clear, logically-sound, lucid, clever treatment of an interesting subject, as would be expected from a computer scientist. This paper is informative and useful in that it may spur specific experimentation and certainly more thinking about rigorous ways to test hypotheses about unusual mental states. I recommend a brief addition of consideration of 2 issues:

- 1) has anyone tried putting two people (perhaps, people with a significant emotional, mental, or genetic connection—twins, husband/wife pair, etc.) under DMT treatment at the same time? Some of the models of this phenomenon may predict that the people could report being in the same space, or perhaps see each other there, be able to communicate, etc.
- 2) in the introduction, the motivation for someone actually doing these experiments may be increased if the author could attempt (or at least suggest as a first step) an objective analysis of the descriptions of the DMT experience: how much concordance is there between different subjects' descriptions of what they find? If there is considerable similarity, it would be some evidence for the more "realistic" models. If there is none, however, it is still possible that people visit different places, etc. The fact that 20% of the subjects in a described study reported an alternate reality with beings in it is not the same thing—an analysis of the more specific descriptions of what people experienced would bear on whether the "realistic" models are plausible enough to warrant testing.