Quantum Analysis of Either-or Questioning Leading to Improve Underdeveloped Ego Autonomy in Early Adolescence: Using the Psychoanalytic Systems Theory

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Abstract
Therapeutic development in an early adolescent with underdeveloped ego autonomy was achieved by presenting either-or questions. This study investigated the process of developing the either-or questions, which leads to developing a personality structure based on the psychoanalytic systems (PAS) theory. PAS theory attempts to understand changes in personality functions in psychoanalysis from quantum-mechanical perspectives. By using the PAS theory, mechanical variables were extracted. The results of the analysis indicated eight stages: (1) Preservation of narcissistic space through either-or questioning; (2) Either-or questioning and the demand for a mark of victory; The client drives the therapist into active-aggressive oedipal victory space; (3) The therapist falls for the trap and drives the client to a need for oedipal victory through Freudian "negation" dynamics; (4) Clarifying castration anxiety; (5) Immobilization of "here and now" boundaries; (6) Releasing the micro quantum world; (7) Clarifying fluctuation of ego autonomy; and (8) Allowance of oedipal self (life) and castrated self (death) due to uncertainty relation; Experiencing being Schrödinger's cat. Thus, the birth mechanisms of either-or questioning were reconstructed, and the mechanisms of modifying and improving underdeveloped ego autonomy through either-or questions were identified.

Key Words: Early Adolescence, Ego Autonomy, Either-or Questioning, Quantum Theory, Psychoanalytic Systems (PAS) Theory.


Introduction
In Japan, there is a growing demand for new psychotherapeutic approaches as more adolescents demonstrate less autonomy, fail to tell the story of their inner world, and have difficulties in making decisions (Nabeta, 2007). Nagayama (2017) reported that combined individual psychotherapy and group activities was successful in the developmental correction of autonomy in the case of an early adolescent with school non-attendance (futoko) who had exhibited the above problems and was diagnosed with Autism spectrum disorder.

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At first, the client (Cl) presented the therapist (Th) with a series of dilemmas in which a choice had to be made between two polar opposites without talking about himself, and was unable to grasp the trigger of the autonomous decision-making to advance the career selection. This aggressive, antisocial interpersonal patterns in which the individual protects himself by forcing unanswered and unsolved problems back at others reflects a distorted state of autonomy that is typically seen among developmentally challenged children and adolescents, and among aggressors in bullying and abuse cases, as well as among adults with antisocial personality disorders.

The corrective development of ego autonomy became the therapeutic goal in this particular early adolescent after the Cl's autonomy was clarified in the context of interpersonal interaction through a clinical intervention based on psychoanalytic developmental principles. The therapeutic mechanisms were reconstructed based on the findings; however, the study falls short of presenting therapeutic principles that can identify the dynamic variables of early adolescents that drive the corrective development of autonomy. The study does, on the other hand, suggest certain therapeutic principles that may be relied on as a basis for universal therapeutic techniques with respect to the corrective development of early adolescent's autonomy.

The purpose of this study, therefore, in addition to analyzing Nagayama's (2017) dynamic development of technique, is to clarify the dynamic paths of Cl's developmental changes by identifying sequences that lead from the birth mechanisms of either-or questioning that trigger therapeutic development to the development of personality structure. Early adolescence is a risky time for personality development with regard to autonomy, and elucidation of the corrective developmental mechanisms of underdeveloped ego autonomy may allow us to turn such risks into opportunities for creative change. This study, which presents formulations of the corrective developmental dynamics of ego autonomy, aims to serve as a stepping stone for future verification studies.

**Method and Procedure**

It is apparent from the shift of psychotherapy to cognitive-behavioral methods that the process of personality change is on the brink of being pushed into a black box, although there is a growing interest in moments of change, such as when athletes experiencing being in the zone and having an explosion of power. The psychological processes lie in a sequence of perception—cognition, emotion—feeling, attitude-action (PEA string process), in which the continuity of the autonomy of personality is not necessarily secure. From a quantum mechanics perspective, this is a freely moving process along multidimensional, simultaneous vectors in parallel and different directions, with functional development of personality determined by macro vectors (Kotani, 2018). While still only the attempt, the idea is to apply a quantum mechanics perspective to psychoanalytic systems (PAS) theory and extract dynamic variables related to changes in psychoanalytic personality functions. Based on PAS theory, this study seeks to identify moments of change in cases related to the autonomy of the personality through the following: (1) reorganization of case formulations for change processes in the study by Nagayama (2017). (2) reconstruction of the birth mechanisms of either-or questioning through the re-analysis of each item based on macro formulations of change, and identification of the dynamic development of variables. (3) the reconstruction of the mechanisms of the corrective development processes for underdeveloped ego autonomy that are revealed by either-or questioning.

**Reorganization of Case Formulations and Dynamic Variables**

The case formulations derived from the results of psychotherapy are as follows. Cl was faced with difficult decisions related to his father's absence and his diagnosis of a disorder, and anger at his unreciprocated interest in his father left the subjective ego in a passive-aggressive state. He recovered activity by asking either-or questions, and subjecting Ths to the same either-or questioning, he superimposed the genuine, as defined by C.R. Rogers, that is, Ths over his disturbed self and un-reciprocating father, to recover the active subjective ego. This phenomenon represents a change mechanism in a two-
dimensional concurrent parallel process through PAS psychotherapy informed by quantum mechanics (Kotani, 2018). This was backed into a Schrödinger’s cat situation in the face of Cl’s barrage of dilemma questions [originally, it is a paradox for indicating measurement problem. Here, it is used as an example for expressing the characteristics of the world of quantum theory]. This was simultaneously the dead cat that failed to answer, and the triumphant cat that answered. Cl superimposed an image of himself, destined to die, with the image of himself, confronted with the hardships, which seemed to be an oedipal father he was seeking.

In this process, Cl built up his self-relationship experiencing through self-reflection and was able to reestablish the “subject” by reorganizing his mental boundaries and his internal space, language, and time (Kawai & Tanaka, 2016). The process by which extreme either-or questioning stops after recovery of activity is the same as the process by which autonomy is reestablished. Thus, the reorganization of case formulations based on added insight from quantum theory allows us to identify the variables that triggered change through either-or questioning; it was Cl’s act of putting Th in the Schrödinger’s cat box. That is, it is the act of asking either-or questions and “phallic energy” (Kotani, Nakamura, Akiyama, & Hashimoto, 2001), which has long been a focus of PAS theory as an adolescent dynamics.

How was it that Cl came to posit either-or dilemmas that activated phallic energy? Nagayama’s (2017) formulations can be used to narrow down the sphere of analysis. If ego autonomy is oscillated by separation anxiety and is developed through concretization of an object, then the either-or question is a product of a 2-year-old emperor who reflects on significant others in whether to confront or retreat from his own internal state of dilemma, that is, separation, or stay or leave a unified world (in-and-out program)(Kotani, 2018). This is easily replayed on the journey of psychosocial separation and individuation that follows separation from family in adolescence. It is the second separation-individuation process of going out into a wider world after a practice period of separation-individuation in the infant stage (Mahler, 1964) and following childhood, or what used to be referred to as the latency period (Blos, 1967). It has been recognized from almost half a century ago that the first separation-individuation conflict is reigned when the second begins, as is the developmental task of reconstructing self-identity (Masterson, 1972). In Japan, the prolongation of early adolescence is becoming increasingly generalized. In the background, developmental tasks between 3 and 10 years of age go unachieved, and the assumptions of conventional psychological development models are increasingly difficult to apply (Kotani, 2014). The barrage of either-or questions is both a counterattack and assertion by a child seeking developmental correction.

Case Re-Analysis

Case Summary

Cl. A 9th-grade boy when he was taken over by Th. Absent without leave from school (futoko); agreed to a suggestion to seek consultation in the day room.

Background. He had limited vocabulary at the 1.5-year health examination and was unable to make direct eye contact at the 3-year health examination. The mother divorced when he was 3 years old; Cl began licking his slippers and had severe hyperactivity when he was placed in daycare; and was diagnosed with minimal brain dysfunction. The mother and child visited a child welfare institution, but according to the staff (St), there were large gaps in the mother’s interest in Cl, and Cl did not participate in group work. He was restless and violent in elementary school; and was placed at the regular level for children with disabilities. He disliked his 4th-grade homeroom teacher and developed a rash after refusing to go to school (futoko). He increased attendance in 5th grade when he had a male homeroom teacher, but refused to attend school again starting in 8th grade. The mother and the child spent a significant amount of time at home. Sometimes he became unstable and hit his mother or sister. I occasionally play video games with boys and watch television with a male neighbor. In the 8th-grade, his WISC-III scores at 8th grade were scattered on the low end with a full-scale IQ of 83, verbal IQ of 85, and a performance IQ of 85 points. He was diagnosed with pervasive development disorders, that is, autism spectrum disorder according to the DSM-5 criteria and had to choose a career path between special needs school or private school.
Therapeutic structure: Combined psychotherapy was conducted consisting of individual therapy and group activities (male St: Th, A, B, female St: C and a few Th) and other St group activities (male St: D and a few Th, female St: E and a few Th) once a week.

Ethical considerations: Permission for conducting the research from the manager of the center, as well as the consent of Cl and his mother, were obtained verbally and documented.

Case study progression (1) Cl's speech is in quotation marks (""), Th's speech is in brackets (< >), and the points of change are in italics.

At the first meeting, Cl repeatedly asked, "Which do you like, homos or gays or sadists or masochists?" until the male St responded, and demanded, "Money." Cl continued to ask for money during group activities (G; through G#18); after four months, he asked: "Which do you like, sadists or masochists?" "Take the middle with a homo?" and delighted when Th chose <masochists>, and asked, "Which would you date, homo or gay?" With previous Th (male), Cl engaged in comics→table tennis→video games for a specific time each session. Th took over six months later. Cl said the goods he wanted but did not discuss anything that bothered him; at issue was his inability to share feelings and the avoidance of decision-making and things he did not understand.

#1 Cl did not talk about himself and was reading comics. After directions like "Get rough," he asked, "If you could have as many layers of down as you want, which would be better, 40 degrees or -10 degrees?".

Th deliberated <hmmm which one... >, and Cl laughed, "But just one pair of underpants underneath." Th responded <What about you? >But Cl said, "Neither. Which one?". Th answered <40 degrees >, and Cl laughed, "Test that in summer." #3 Cl treated a guitar like a koto (Japanese harp) and said "Nice sound." When Th also enjoyed the moment, Cl said maliciously, "Don't need this (tip of the string)" and "King (DSt: male, leader and Th of Cl's mother) is going to kill you." Th said <Scary >, and Cl gently said "beetle" while looking at the guitar. Then, Cl said, "If I could be anything I want, I would be a government official. You can make a million in the last ten years". G#4 Cl did not avoid having lunch with female St and members and asked all the Ths, "What food do you eat way too much of?"

Initially, Cl often asked Ths one choice (open) questions about extreme experiences in daily life and directed them to do. Cl referred to a female St (C · E) who was good at games as "Devil" and tried to beat her in the game, and at the same time, punished a male St who was not good at games. G#7 Cl delighted in proposing penalty games, but quit if CSt lost and did not enjoy the actual game. G#8 Cl did not get excited about winning at a racing video game with male St and took risky shortcuts to fail and lose the game when he was in the lead. After breaking his chopsticks and putting them in his lunch box to "annoy" his mother, Cl made male St answer to his question: "If you don't want to go bald on the train and you won't go bald if you yell 10 times, but you'll suddenly go bald if you don't, which would you choose?" In response to questions from St, Cl began to answer, "Yell." Follow-up G#8 Cl began a winning streak against ESt using shortcuts at the racing video game. Cl exhibited a resistant attitude toward his mother at home.

Analysis and Discussion (1) Analysis of Development Mechanisms based on PAS Theory

In #1, Cl presented a dilemma to Th that Th was forced to tolerate and which would cause embarrassment irrespective of the answer, and by watching and doing the asking, Cl defended against the powerlessness of the underdeveloped ego autonomy that kept him from being able to make decisions on his own, and at the same time, imposed on Th the initiative to escape from the dilemma. This is a defensive pattern typical of antisocial personality styles. His either—or questions reflected fluctuation in ego autonomy with respect to being unable to make decisions while Cl did not retreat within himself and interacted with the outside and indicated a high degree of regressive induction to oral stage-like object seeking and ego autonomy development stages. Their extreme and unbounded nature suggests that Cl struggled with life and death drives (Freud, 1920) that became polarized in early adolescence. Cl’s personal history indicates sexual identity and group identity issues as well as phallic and superego underdevelopment. Lacking experiencing in the oedipal triangular relationship, Cl was unable to enter into a positive oedipal position under the close, extreme double-bind state of the mother-child relationship, and exhibited underdevelopment of ego function
(Beres, 1956) related to secondary autonomy (Hartmann, 1939). Thus, Cl faced developmental tasks in 1) ability to face reality, 2) psychosocial expression of instinctual impulses, 3) peer and social group relationship skills, 4) ability to balance triangular object relations, 5) reality integration of thought processes, 6) independent integration of autonomous function, and 7) ability to integrate self as an independent entity (ability to be alone). According to Kotani (2018), if the mother-child “interactive mental matrix” [this means the interactive space that appears “between” individuals, which is experienced when individuals do not try to connect with each other. The matrix indicates the space where mental phenomena are expressed based on the transmission of information by individual neural networks (Pinney, 1994)] that balances separation anxiety is not maintained during the separation-individuation stage, that is, if the to and fro process between attempting separation and falling back into amae [dependence] is not protected by a loving relationship, the child will have his first traumatic experience related to autonomy. The Cl’s underdeveloped ego autonomy might be explained by separation anxiety issues that were reignited in early adolescence, because of his parents’ divorce at age 3. He sought help by asking either-or questions to Th, and protected by significant other’s absolute safety net; it was necessary for him to undergo the separation-individuation process. Cl’s questioning was a cry for developmental correction of his ego autonomy, an oral stage interactive mental matrix to strengthen the safe space of the two-person relationship, that is a regression to the parent-child mental matrix through speech that reflected an aggressive-active breast-feeding “bite-release” pattern.

Further, according to Kotani (2018), while a resilient ego autonomy generated through separation from the mother before three years of age will help to process the various conflicts that arise thereafter in the triangular father-mother-child relationship, it will serve to strengthen psychosomatic disorder if underdeveloped. It is the foundation for a triangular (oedipal) interactive mental matrix. Cl’s refusal to attend school began as a reaction to a female teacher in 4th grade, during the pre-adolescence phase; his physical symptoms and his return to school based on his interactions with a male teacher suggest unresolved underdeveloped ego autonomy issues stemming from the absence of fatherly support. Although Nagayama (2017) drew on Cl’s close mother-child relationship and discord with the female teacher to presume a negative image of a “devil” mother controlling the world, Cl’s questioning suggests weak phallic energy during the early adolescent differentiation of sex as well as the impact of losing his father at age 3. Together with the loss of his father, Cl’s underdeveloped ego autonomy due to close mother-child relationship and the weakness of suppression during the latency phase may have manifested in an inability to control impulsiveness and exaggerated castration anxiety in “you choose you lose.” Cl’s response to extreme choices beginning with G#8 coincided with resistance to his mother. This marked the commencement of the corrective development of Cl’s ego autonomy.

**Case Study Progression (2) After Cl began to Answer his own Extreme Either-or Questions**

### #9 Extreme either-or questions such as "Which one, bet on mahjong or sleep in front of King (DSt)" increased, and at such a pace that Th could not ask back. Th said <I hate both>., but Cl said, "It’s mandatory" and laughed when Th made a choice. Cl asked the same questions one after another to other St in group activities as well. Increasingly initiated conversation. # 11 Impatiently repeated, "I want to do P (the racing video game). Let’s hurry up and finish," and in response to <No can do. Do you want to finish? > said, "I want to go home in an instant as soon as the space cuts open." G#11 Asked male St, "Q or R (handsome overseas actors), which do you want to be?" Raced against male St without shortcuts in the racing video game, and was smug about winning against Th. #12 Cl asked, "If you will get paid 9000 yen every day forever if you cut off your finger, would you do it or not do it?" Th said, <I don’t want to cut off my finger > and resisted even after Cl offers better conditions, to which Cl said, "What if you could save your parents if you cut off your pinky?" < That’s really tough. It’s a hard choice to make.> "What would you do ?" <It’s tough... But I would cut it off. How about you? > Cl read a comic as if to shut down the conversation. He said, "I’m going to go ask A (male St)." <You can’t right now.> Cl said, "Say it in English. Even if I die, there is someone to replace me." "Don’t run away" [Japanese
Cl asked another St to choose between money and their fingers and 7d when two St chose their finger. "What about you Cl?" Cl chose "Finger." He recently started calling CSt "Principal" and spoke admiringly to DSt, who was good at both UNO [card game] and arm-wrestling. Cl expressed ideas about balance: "I understand both; people who smoke think it's impossible not to smoke, while people who don't smoke, think, why smoke?" "My mom smoked. It smells good." Playing UNO with the cards facing up midway, Cl lost even where he should have been able to look at his opponent's cards and think ahead. He then asked, "Have you ever thought you wanted to die?" "Have you ever wondered why we're living?" "I think I have. > "You have!" < What about you, Cl? > "I don't think about stuff like that." If you could get 50 billion yen for enduring mental stress at Z (day room) or for being a gofer, which would you pick?" Stress is rough. What would you do? > "I would do it. If I can get counseling too. My stress would be reduced." Cl did not try to get answers from Th thereafter. With respect to animation characters, he asked, "Do you think he's a homo?" and talked about how a father regrets leaving his child alone, etc. Cl asked in succession, "Which would you marry, King (DSt) or a rock?" "Which would you rescue, A or B (male St)?" Th said <I can't do either... how about you Cl? >, and Cl responded, "I would rather be a rock than a homo" and "I would make them play rock, paper, scissors." Cl began to diversify the difficulty of his questioning and started to share his feelings with respect to third parties; "I think it would be funny to tell comedians that they would die if they can't answer '1+1=' right. They would be nervous." <People get nervous if they have to decide on even simple things>, etc. After a barrage of questions such as "How long did it take you to get over depression?" and "What is life?" Cl said, "I'm going to go ask A later." Cl started sharing feelings with one other person; "If you or your parents had to die, which would it be?" "That's a tough choice." "I'm asking because it's tough." Cl attempted to open another person's locker, and when Th intercepted, Cl said, "This is a gray zone" and tried to put tape over the gap, and was stopped by Th. Cl attempted to open another person's locker, and when Th intercepted, Cl said, "This is a gray zone" and tried to put tape over the gap, and was stopped by Th. After he said, "Which would you make on the train, a bridge or a heart shape?" and "If you make a bridge, you might be arrested if they think you're doing drugs," Cl stopped asking extreme either-or questions. When BST lost, Cl played a penalty game but didn't see much and banged on the piano keyboard while saying "Destroy." Thereafter he stopped penalty games. He proactively spoke with other members and acted as a mood-maker. While Th made kanji (Chinese character) quizzes at Cl's directions, Cl said, "There are essays for entrance exams, I hate that. Only two more months."

Analysis and Discussion (2) Change Mechanisms from a Quantum Theory Perspective

(1) Observation of energy particles through either-or questions related to life and death drive. Cl's play themes were deciding the fate and differentiating sex. This is more easily understandable from a quantum mechanics perspective as opposed to Newtonian causal laws. Cl was unable to stabilize an autonomous ego along the direct lines between consciousness and experiencing; what he needed was a mother-child mental matrix through which he could safely enjoy the fluctuating quantum space. He asked questions about death after freezing up from having laid his cards bare to be genuine in #14; Cl thus turned to death when he lost ego autonomy, but he strove to stay alive by continuously asking either-or questions. Through this process, he obtained an early adolescent amae-relationship (dependency) that was free to enjoy a kind of quantum fluctuation. Kotani (2018) discusses how quantum theory may be applied to post-Freudian (1920) inquiries into the interactive dynamics of life and death drives, and a quantum analysis may be pertinent in understanding the kind of fluctuation seen in Cl. His repeated either-or questioning suggests that safe intermittent of the linear process of consciousness was enabled from moment to moment in a typical experiencing of chaos in the micro-world; he offered extreme two choices in a bundling of energy through the dynamics of "quantization," in which things must be split in two to stabilize autonomous energy. Of the four choices related to sex and drive that Cl presented from the beginning, two were the result of the "quantization" of death drive into sadists and masochists, which then developed into a line of questioning about positioning between 1 (death drive: sadists-masochists) and 0.
(homosexuals), and finally, following Th's selection of masochism, into questioning about homosexuality (homo-gay). From the quantum theory perspective, there are "uncertainty relation" underlying life drive (homo-gay) and death drive (sadists-masochists) that could not be accurately measured simultaneously, and each drive was in a state of superposition until observed. At present, the uncertainty relation is roughly separated into 3 situations: (1) the relation between the "fluctuation of physical quantity" associated with the quantum state (2) the relation between the "accuracy" or "measurement error" in the measurement of physical quantity and the "disturbance" that the measurement gives to another physical quantity (3) time-energy uncertainty relation (Tani, 2018). A "quantized mental matrix" was developed through the continuation of Cl's either-or process of questioning to the point where Th chose masochism, and Cl chose sadism. At this point, Cl stood above Th in the relationship, allowing Cl to put the question of homosexuality on hold and clear up his castration anxiety by placing Th in a fatherly position within a positive oedipal position.

In quantum theory, time is a classic parameter defined by an observer or a clock; there is an uncertainty relation with respect to the interactive time (Tanimura, 2013), and there is an uncertainty relation between time and energy, and in order to recognize an oscillating wave, it is necessary to take the time of its wavelength before a change in state becomes clear (Tani, 2018). Quantum has the characteristics of both particle and wave, informs everywhere as a probability wave [a bundle of information for the observer(Hotta, 2019)] when unobserved, and becomes a particle once observed; there is also an uncertainty relation. Cl's continuous questioning served on a macro level to take up the other person's time and act as a defense while he hid not only in the space of "here and now" but within time as well. At the same time, by depicting a quantum world in which the situation changed moment by moment even under observation, and by indicating that not choosing would lead to even stricter conditions and even death, Cl may have captured Th's life drive particles; It is his cry for change. Based on objective time measurement initially, Cl abstained from decision-making as a primitive defense mechanism, and shifting in his axis of the observed energy particle may have been the key to escaping his underdeveloped ego autonomy. As described, he moved to observation of life drive (#14) and, without making a choice in favor of homosexuality (#15), he relied on stochastic interpretation to pave a path to intimate love (#17). In #22, Cl might come to capture energy shift from depression (death) to recovery (life) as wave by one choice question and measure the subjective time of others in relation to energy. With such simultaneous measurement of life and death drives now possible, in G#24, Cl put forth a choice between the shame of expressing sexual love and the shame of exposed tolerance, and by penalizing the latter, he was able to choose libidinal drive and safely position his oedipal self, enabling him to do away with his ultimate either-or questioning.

(2) Mother-child object relations in the ego autonomy embryonic period through immobilization of "here and now" boundaries. In Cl's continually moving process of experiencin, when Th stopped at, or Cl touched upon, a particular particle of a moment, the process of kindling [the process in which neurons fire at some point by continuing to give stimuli that are even below threshold (Kotani, 2010)] with Schrödinger's live or dead cat and P (a)=1 or 0 (whether the proposition that P is a is true or false) allowed for theragnosis [a term created by Bach (1957) combining "therapy" and "diagnosis," which is a technique to expand space by differentiating each moment (here and now) in which Th and Cl live together (Kotani, 2010)] as diagnosis/assessment derived from minute dynamic change (Kotani, 2018). Th attempted to retrieve a particle when Cl paused at Th's response to a question. Cl's self-identity wavered, and because it was difficult, as observed in #1, for him to be in the "here and now" and receive other's interest, he wanted others to experience a quantum parallel world and tried to confirm this through his interactions. Rather than watching and waiting, Th made a choice that indicated the direction of vectors that enabled Cl to receive the particle of energy from Th. As with alive or dead Schrödinger's cat, Cl's assumption was perhaps that people's minds could run both ways unless confirmed otherwise. Approaching Cl's questioning in terms of quantum theory shows how the establishment of a relationship between Cl and Th created time and space that became key to moving past separation through object relations. This was, in fact, a reorganization of the birth
process of the mind which connect life and death from 5 or 6 months in prototype (Kotani, 2018), and formation of macro emotional object constancy out of a restricted-other relationship. It was important in this regard that CI was presented with therapeutic structure so as to run up against the limitations of a macro Newtonian world in which time and space were unmovable (#11). CI's cry for a quantum world then became clear, CI stayed "here and now," we see a transition to either-or questioning of a wish for the future from regression to the past under the control of ego using extreme either-or questions (G#11), and to the core theme of "your parents or yourself" and fluctuation of "both parent and self" (#12). The moment to share feelings that followed indicate that CI began processing by sharing the fluctuation in the "here and now," that is, his two-person interactive mental matrix stabilized, and CI began to express his will ("I'm asking because it's tough."); #22). The abandonment of either-or questioning (G#24) suggests that CI achieved ego autonomy and was able to engage proactively in his studies and interpersonal relationships. Th's genuine expressions served to clarify the boundaries between individual and individual, which further clarified the mutual vectors of the interactive mental matrix. In that space, Th's presence served as the axis around which CI was able to position his own self and self-expression stabilized. That is, even within a chaotic jumble of various energies, CI was able to create a self-space in which the quantum world was protected. By maintaining this self-space, CI could both attack (active) and defend (passive), allowing him to stop his questioning and make choices of his own will. This was a re-establishment of his identity as an individual. Th's kindling intervention through the use of return questions and expression of interest in the same critical points within CI's experiencing allowed CI to practice decision making with P(a)=1 clearly in the embryonic phase of ego autonomy, which he chose in the quantum parallel world. Such kindling techniques are likewise applicable to Freudian "negation" defenses.

(3) Allowance of life and death due to uncertainty relation in a pre-oedipal world; Experiencing being Schrödinger's cat. In uncertainty relation, position and momentum cannot be accurately measured simultaneously when "quantum entanglement" in which two particles are correlated does not occur (Erhart, Sponar, Sulyok, Badurek, Ozawa & Hasegawa, 2012). CI initially made Th choose extreme conditions (being) and then later, extreme behaviors (doing). He first sought to clarify the position of Ths, and after he had experienced his own positioning in relation thereto, he next attempted to clarify the momentum with separate either-or questioning. Beginning with numbers and marks in forcing polar opposite choices between + or − (#1), CI's questions transitioned to a theme of losing one thing to gain another as he brought ± fluctuations to the forefront (G#7), and also took on an interpersonal form as CI came to view Ths as counterparts in what culminated in his sharing of the core conflict over the significant others of parent or me(#22). A reflective dialogue begins at this point, and the confirmation of "gray" that combines white and black (#23) indicates CI's search for boundaries in a world of duality, a world in which me and not me coexist. This suggests the establishment of the inner boundaries of self-space where inside and outside overlap (Kotani, 2014). Through his repeated either-or questioning, CI succeeded in his own Schrödinger's cat experiment and experientially came to accept the fifty-fifty life and death probabilities of quantum change (Kotani, 2018). CI began to answer his either-or questions starting in G#8, and the assignment of words to particles of energy led to the creation of time lapses through quantum change that allowed CI to move back and forth between the two poles of me and not me. The movement from one person to two person allowed for reversal and thereby activation of a mentalizing dynamics (#13) that led to the formation of life-death two-person parallels (#14), and once two person was stabilized, CI's questioning shifted to a presentation of two non-extreme choices as he began to focus on the sense of time and inner space held by others. This indicated a transition of the axis of CI's measurement from energy and particles to time and waves. He asked one choice questions and then shared his feelings with respect to either-or questions in #22, and there is some hint of autonomous driving in a PEA string process (Kotani, 2018) within the interaction that is immobilized in the “here and now” of the either-or question. At the moment of making the choice between one or the other alternative, in the process
of measuring his counterpart and confirming himself, Cl established the subject of the two-dimensional pre-oedipal world appearing at the boundary of me and not me; He has reached the stage just one step away from the inner sense of time and the three-dimensional space of the oedipal world in the one choice questions.

The above is akin to the development that the interaction of a special narrow space makes quantum entanglement, from which space-time is born (Lin, Matilde, Ooguri & Stoica, 2015). By forming a quantum entangled state in the matrix of Th and Cl paired by the interaction of Immobilization of "here and now" boundaries by either-or questioning, the simultaneous measurement of life and death drives, or the position and momentum became possible. Thus, the moment came when Cl was able to hold the space of anxiety which life drive is the source and created by facing death drive (Kotani, 2018-2019); Cl came to allow life and death, stop the extreme either-or questions and confront the macro world proactively (G#24).

**Case Study Progression (3) After Cl Stopped Extreme Either-or Questioning**

**G#25** Other people were talking about things that they want to have, and Cl commented: "If you have money, you can buy things. Money can make you happy and unhappy." **G#29** Cl talked to Th about his father as said, "They divorced, so I don't know what he's doing. Maybe I'll say he's dead." **G#31** More stories about each other's daily life from one choice questions, such as "How was your day yesterday?" **G#31** Cl announced that he had decided to attend a general private high school; "Did you leech off your parent? Did you get a loan?"<br/>

"I bought test prep books with my mom's money. I'll work and pay it back eventually." **G#36** Cl asked Th about study methods, "I'm going to try new things." "I want to do the things I can do right now. I can make it if I know the rules," and commented on changes in himself: "I'm not having rejective reactions anymore." **G#37** During lunch, Cl encouraged a number of St other than Th to eat food that AST had said was not good, and proposed that if the majority thought that it tasted fine, they should complain to AST, commenting, "Democracy is scary. Sometimes cruel." AST and CST told Cl to try the food himself, and Cl said, "What do you know, it's fine," and the other St also said that the food was fine. Lastly, Cl proposed playing a game where a finger can be pinched by pressing some tooth-shaped button, in which he got every group participant to push the tooth-shaped button one by one and everyone naturally ended up in a circle. Cl said, "You can tell by touch where your finger will get caught if you push," and in the end, he purposely lets his finger get caught. **Followup** Cl attended all classes and had good grades in high school, and his medical treatment was ended.

**Analysis and Discussion (3) Change Mechanisms from a Quantum Theory Perspective: Into an Oedipal World**

Inclusive of his descriptive diagnosis, Cl was judged by a Newtonian and macro set of general societal rules without regard to the micro world, and while he became passive, he must have been angry about being dichotomously labeled as impaired. His many-worlds interpretable questions were an experiment in the challenge to the Newtonian world, and Th tried to capture fluctuation as a quantum world, so that Cl could preserve the totality and achieve ego autonomy. The reality was chosen for two poles of fantasy or reality in G#24, fear was held by himself in #24, money connected self and world in G#25, rules connected Cl and Th in G#36, and Cl was able to use money and rules without prioritizing his mother. His initial choice in favor of himself and later change to his mother (G#31) was the result of being able to move back and forth in a me-not me duality. Cl's either-or questioning invited Th into a quantum parallel world and uncovered his cry for change that would break down harsh superego assumptions, and by assigning Th to the father position in which mother and father had been in a state of superposition, Cl was able to place himself safely in a fifty-fifty position without deeming himself wrong for not siding with his mother. This indicated a reactivation of the oedipal triangular relationship and the development of a mother-child relationship that forms the basis for a benevolent superego. With the ability to move back and forth between fatherly and motherly objects, Cl entered the oedipal world with a self-space in which his quantum world was preserved.
The transition to mostly every-day one choice questioning suggests that as the ambiguous state of interest and anger vectors changed, Cl was able to move proactively between past, present, and future, and shift his axis of measurement to waves from particle position and momentum. When he stopped asking extreme either-or questions in favor of presenting more common choices to inquire about past experiences, and through commenting on the choice to spend money, Cl accepted the loss of his father (G#31).

The various vectors in "Democracy is scary" (G#37) demonstrate how the individual may stay stuck in reality in times of uncertainty or crisis and utilize a "psychologically safe space (Kotani, 2005)" in times of growth. Where Cl had lacked large self experiencing (Kotani, 2014) in group settings and face to face interaction with real men, universality and physicality accompanied the quantum world. He was able to turn choice into action without fear in his interactions with others because of the balance that was struck between cognition, sense and feeling, and expression thereof through inquiry in the PEA string process (G#37). Cl's immobilization of position through either-or questioning and his attempts to capture particles of energy were the starting points from which vectors were fixed, and he was able to engage in autonomous decision-making through activation of an independent ego autonomy following "intrapersonal drive energy development" (Kotani, 2008) along the progression of drive⇒need⇒wish⇒will⇒action/expression. Coexisting measurements of position and momentum, or energy and time, enabled the stabilization of Cl's self-identity (Kotani, 2018), defined by and for himself at the macro level.

Conclusion

Variables contributing to the construction of either-or questioning and therapeutic development process. Seven variables were extracted from this case study: castration anxiety, active−aggressive oedipal victory impulse, negation dynamics, safe space, here and now, fluctuation of ego autonomy, and Schrödinger's cat. Reconstruction of the birth mechanisms of either-or questioning. In Cl's life history, he had lost the oedipal triangular interactive mental matrix of father-mother-Cl due to his mother's divorce and other factors affecting his development at 3 years of age, and with this oedipal impairment, he showed signs of developmental disorder-like reactions and was diagnosed with minimal brain dysfunction, and, having withdrawn from triangular spaces, he grew up in an environment that was limited to that of mother-child. Underdevelopment of ego autonomy overlapped with the suppression of castration anxiety and presented in early adolescent underdevelopment. In early adolescence, this underdevelopment surfaced in physical symptoms arising in reaction to failed interaction with a female teacher, and following the oedipal force by phallic identification with a male teacher, Cl eventually withdrew himself.

In a state of withdrawal and castration anxiety diffused, Cl entered a constancy psychotherapy space and a relaxed group space composed of male and female Ths. These spaces provided freedom for the reaction-forming rebellion of castration anxiety as a normal early adolescent developmental response. Cl presented an in-group autism dynamics to the group, and through 4-choice questioning that could not be answered unilaterally directed at St in the group, he attempted to secure a narcissistic space for himself within the group. This was, in effect, secondary autism stemming from negation of two-person "me-not me" interactions. This secondary autism, however, was an effort by Cl to heighten his readiness for his own active−aggressive, me-not me separation. By 4-choice questioning, Cl protected narcissistic space and experienced allowing him to maintain a safe space with castration anxiety in relation to a counterpart. The active−aggressive questioning mechanism then became a game. In other words, this game using 4-choice questions was allowed, comparable to how infants begin to throw anything at random as part of the separation process that occurs around 10 months of age (Kotani, 2018), through which Cl prepared for the corrective development process of mother-child separation (Kotani, 2012), where he would learn that separate ternary relationships can be maintained in the field of interactions with others.

At this point, Cl turned to either-or questioning, for which the primary birth mechanism was the release of castration anxiety reaction formation. Castration anxiety created a device for narcissistic oedipal victory without struggle. Th was
proactively involved in this and then played the part of a counterpart who could never win in Cl's scenarios, and when Th touched on Cl's need for superiority, Cl reacted immediately with a "negation" defense against the surfacing of his suppressed oedipal impulses. To maintain this negation, Cl needed a safe space in which it would not be overturned. Until then, Cl thought that such space was unattainable because, whether he wanted it or not, he was forced, or he forced himself, into one or the other poles of normal development or impaired development. He shut himself away in a narcissistic space of negation against moving and changing freely. Playful interaction with Th created a safe space for Cl that came to be preserved through Th's participation in the closed "here and now" space, informed by a quantum theory approach to suppression and the ambiguous space of the seemingly solvable but unsolvable. This allowed Cl to play in a space of narcissistic oedipal victory through either-or questioning.

Figure 1. Reconstruction of the Birth and Development Mechanisms of Either-or Questioning

These mechanisms behind Cl's either-or questioning can be verified in the regaining of a positive oedipal position and re-acquiring of ego autonomy (Figure 1) through dynamic developments that followed. Castration anxiety activated the oedipal triangular relationship and pushed forward mother-child separation and development of the triangular relationship in a developmental correction process to obtain a more resilient ego autonomy.
From a dichotomous, “either one or the other” Newtonian approach, Cl’s either-or questioning seen as splitting or me-not me incompatible may be explained by schizoid mechanisms or Autism spectrum disorder, but a fluctuating quantum theory perspective provides meaningful insight into the turning point at which healthy development of ego autonomy is achieved without losing unity. It should also be noted that, in uncovering the defense mechanism of hiding in time and understanding it simultaneously as an experiment in quantum theory, this case study highlights how time can be had at the micro-level and how spaces can be created to share fluctuation “here and now.”

**Future Outlook and Challenges**

Since interactions through either-or questioning led to therapeutic development in this case study, it can be assumed that either-or questioning conducted by Th may also be useful as an intervention method in cases where it is difficult to apply more orthodox one choice approaches to wave or stories, as well as inner world at the macro level. It would be pertinent in future studies to apply the variables and mechanisms revealed herein to therapeutic interventions in other cases and to verify the research hypotheses below regarding the developmental correction of early adolescent ego autonomy in the interest of developing ego autonomy-based algorithms for the correction of early adolescent underdevelopment.

- **Hypothesis 1**: In the case of an early adolescent with underdeveloped ego autonomy, in addition to choosing for either-or questions presented by Cl, either-or questioning by Th may be effective in capturing issues in the embryonic phase of ego autonomy when Cl redefine own positioning as P (a)=1 or 0. Th’s either-or questioning induces Cl’s own regression under the control of ego. Compared to one choices, either-or questions lead Th and Cl to take explicit positions and under the immobilization that then give rise to an interactive mental matrix with explicit vectors and provide the opportunity to practice decision-making in which P (a)=1 is clear.
- **Hypothesis 2**: Either-or questions may open the door to a quantum parallel world, where it is possible to move between me and not me and father and mother. They uncover a cry for change that break down harsh superego assumptions, aid a reactivation of the oedipal triangular relationship ⇒ a mother-child relationship that forms the basis for a benevolent superego, and contribute to the creation of a psychologically safe space.
- **Hypothesis 3**: It might be therapeutic to employ interventions that capture the particle or energy rather than waves or time, in the context of uncertainty relation. Cl’s immobilization of position through either-or questioning and his attempts to capture particles of energy were the starting points from which vectors were fixed, and Cl can engage in autonomous decision-making through activation of an independent ego autonomy following intrapersonal drive energy development.
- **Hypothesis 4**: Either-or questioning may promote an interactive mental matrix with explicit vectors, pave the way for interaction with others to self-observation from observation of others, and assist in the establishment of the inner boundaries of self-space where inside and outside overlap. It also aids in Cl’s shift of the axis in self-observation from particle position⇒particle momentum⇒wave, and helps to stabilize Cl’s self-identity, defined by and for himself at the macro level through coexisting measurements of position and momentum, or energy and time.

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**References**


