

Chapter 1 : Saint Augustine (Stanford Encyclopedia of Philosophy)

The Classical Outlook is the leading publication for classroom teachers of Latin, Greek, and Classical Humanities in the schools (elementary, middle, secondary), colleges, and universities.

The information interpretation of quantum mechanics explains that the wave function is purely abstract immaterial information about where concrete material particles will be found statistically when a large number of particles are measured. Quantum waves are never seen. They are not "observables," which Heisenberg made his chief criterion for the new quantum mechanics. He declared that the electron orbits of the "old" quantum theory of the Bohr atom simply do not exist because they are not observable. Only the spectral lines of light given off by transitions between energy levels are observable, he said. Following the traditional Copenhagen Interpretation, many physicists today describe a quantum object as either a wave or a particle, depending on the free choice of the experimenter. Calculations by a physicist describing the evolution of a quantum system, an electron or a photon, for example, goes in two stages. Because the space where the possibilities are non-zero is large, we say that the wave function or "possibilities function" is nonlocal. Albert Einstein always hoped for a local "objective reality. The other stage is measurement, when the photon or electron interacts with one or more of the surrounding particles, including the measurement apparatus. At this point, one of the nonlocal possibilities may be "actualized" or localized. The quantum process raises deep metaphysical questions about possibilities, with their calculable probabilities, and the actualities. Information about the new interaction may or may not be recorded. If the new information is irreversibly recorded, it may later be observed. It must be recorded before it can be observed. A "conscious observer" is not involved in the recording of the measurement. The recording of a measurement happens before the observer makes an observation. In modern physics, that can be days or weeks before the observation which requires lengthy calculations and "data reduction. That a light wave might actually be composed of quanta later called photons was first proposed by Albert Einstein as his "light-quantum hypothesis. On the modern quantum view, what spreads out is a "nonlocal" wave of probability amplitude, the possibilities for absorption, followed by a whole photon actually being absorbed "localized" somewhere. In accordance with the assumption to be considered here, the energy of a light ray spreading out from a point source is not continuously distributed over an increasing space but consists of a finite number of energy quanta which are localized at points in space, which move without dividing, and which can only be produced and absorbed as whole units. For this reason, I believe that the next phase in the development of theoretical physics will bring us a theory of light that can be considered a fusion of the oscillation and emission theories. Even without delving deeply into theory, one notices that our theory of light cannot explain certain fundamental properties of phenomena associated with light. Why does the color of light, and not its intensity, determine whether a certain photochemical reaction occurs? Why is light of short wavelength generally more effective chemically than light of longer wavelength? Why are higher temperatures and, thus, higher molecular energies required to add a short-wavelength component to the radiation emitted by an object? The fundamental property of the oscillation theory that engenders these difficulties seems to me the following. In the kinetic theory of molecules, for every process in which only a few elementary particles participate. But that is not the case for the elementary processes of radiation. There are no outgoing spherical waves except probability amplitude or "possibilities" waves. Even less likely are incoming spherical waves, never seen in nature. According to our prevailing theory, an oscillating ion generates a spherical wave that propagates outwards. The inverse process does not exist as an elementary process. A converging spherical wave is mathematically possible, to be sure; but to approach its realization requires a vast number of emitting entities. The elementary process of emission is not invertible. In this, I believe, our oscillation theory does not hit the mark. This was the introduction of ontological chance Zufall into physics, over a decade before Heisenberg announced that quantum mechanics is acausal in his "uncertainty principle" paper of 1927. As late as 1930, Einstein felt very much alone in believing the reality of light quanta: I do not doubt anymore the reality of radiation quanta, although I still stand quite alone in this conviction. Letter to Besso, quoted by Abraham Pais," "Subtle is the Lord. The formal similarity between the

chromatic distribution curve for thermal radiation and the Maxwell velocity-distribution law is too striking to have remained hidden for long. In fact, it was this similarity which led W. Wien, some time ago, to an extension of the radiation formula in his important theoretical paper, in which he derived his displacement law. When light is absorbed by material particles, this momentum will clearly be transferred to the particle. But when light is emitted by an atom or molecule, a problem appears. However, the standard theory of spontaneous emission of radiation is that it produces a spherical wave going out in all directions. A spherically symmetric wave has no preferred direction. In which direction does the atom recoil? For example, let us look at emission from the point of view of classical electrodynamics. If, however, the emission is a spatially symmetric process, e. This alternative also plays a role in the quantum theory of radiation. It turns out that we arrive at a theory that is free of contradictions, only if we interpret those elementary processes as completely directed processes. Neither can the theory predict the time when the light quantum will be emitted. Such a random time was not unknown to physics. When Ernest Rutherford derived the law for radioactive decay of unstable atomic nuclei in , he could only give the probability of decay time. Einstein saw the connection with radiation emission: It speaks in favor of the theory that the statistical law assumed for [spontaneous] emission is nothing but the Rutherford law of radioactive decay. Pais, "Subtle is the Lord Einstein clearly saw, as none of his contemporaries did, that since spontaneous emission is a statistical process, it cannot possibly be described with classical physics. The properties of elementary processes required He said that it "rests on a seemingly monstrous assumption. Einstein saw that transitions between those levels should be discrete quanta. On the basis of this hypothesis, the light-quanta hypothesis, the questions raised above about the emission and absorption of light can be answered. As far as we know, the quantitative consequences of this light-quanta hypothesis are confirmed. This provokes the following question. Is it not possible to replace the light-quanta hypothesis with another assumption, with which one could do justice to known phenomena? To arrive at a certain answer to this question, let us proceed in the opposite direction of Planck in his radiation theory. He confirmed that light behaves sometimes like waves notably when a great number of particles are present and for low energies , at other times like the particles of a gas for few particles and high energies. Dirac on Wave-Particle Duality Quantum mechanics is able to effect a reconciliation of the wave and corpuscular properties of light. The essential point is the association of each of the translational states of a photon with one of the wave functions of ordinary wave optics. The nature of this association cannot be pictured on a basis of classical mechanics, but is something entirely new. It would be quite wrong to picture the photon and its associated wave as interacting in the way in which particles and waves can interact in classical mechanics. The association can be interpreted only statistically, the wave function giving us information about the probability of our finding the photon in any particular place when we make an observation of where it is. Note that the information about the possibility of a photon at a given point does not have to be "knowledge" for some conscious observer. It is statistical information about the photon, even if it is never observed. Some time before the discovery of quantum mechanics people [viz. What they did not clearly realize, however, was that the wave function gives information about the probability of one photon being in a particular place and not the probable number of photons in that place. Principles of Quantum Mechanics, 4th ed. But if we accept that Einstein always conceived the particle as indivisible and located at a given point in space and time his local "objective reality" , we can agree with Dirac that the wave function gives us the probability of the individual particle "being in a particular place.

Chapter 2 : Parametrized Homotopy Theory

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Summary Analysis The group awakes on a scorching hot day, demoralized by a mosquito-ridden night. Chris complains at breakfast of another stomachache. Phaedrus was the only one who fully understood his own ideas, but he can no longer speak for himself. Romantics see the world in terms of its surface appearance, and are predisposed towards emotions and intuitions. The narrator explains that motorcycle riding is a romantic experience, while motorcycle maintenance is more of a classic task. Active Themes The classic approach aims to order the universe in a rational, economical way, and romantics can see this as dull and joyless. For this reason, classic and romantic ways of thinking are often at odds with one another, and people can rarely straddle the two approaches. The narrator explains that in the present day there is an ever-widening gap between classic culture and romantic counterculture. Active Themes Phaedrus, the narrator says, operated within this alienating context of opposing ideologies. His ideas made others believe he was insane, and this social antagonism in turn made Phaedrus still more insane. Active Themes Get the entire Zen and the Art of LitChart as a printable PDF. The group stops for gas and coffee, and the narrator explains to Chris that he must eat with the rest of the group or not at all. The narrator demonstrates this sort of thought by dividing a motorcycle into an extremely specific list of systems and their components: Active Themes Following his classical outline of the motorcycle, the narrator explains that this way of thinking has four important deficiencies: Though both Phaedrus and the narrator seem predisposed to a classic perspective, the narrator readily acknowledges that the classical outlook cannot encompass many important aspects of perception and understanding. Active Themes According to the narrator, Phaedrus used this knife of logic to cut the world into very fine parts that he could analyze. He tried to cut so far into a reality that he saw as deficient that he ended up hurting himself. This cryptic description of Phaedrus further emphasizes the tragedy of his philosophical mission. Retrieved November 12,

Chapter 3 : Wave-Particle Duality

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Context Only four of his seventy-five years were spent outside Northern Africa, and fifty-seven of the remaining seventy-one were in such relatively out of the way places as Thagaste and Hippo Regius, both belonging to Roman provinces, neither notable for either cultural or commercial prominence. However, the few years Augustine spent away from Northern Africa exerted an incalculable influence upon his thought, and his geographical distance from the major intellectual and political capitals of the Later Roman Empire should not obscure the tremendous influence he came to exert even in his own lifetime. Here, as elsewhere, one is confronted by a figure both strikingly liminal and, at times, intriguingly ambivalent. He was, as already noted, a long time resident and, eventually, Bishop in Northern Africa whose thought was transformed and redirected during the four brief years he spent in Rome and Milan, far away from the provincial context where he was born and died and spent almost all of the years in between; he was a man who tells us that he never thought of himself as not being in some sense a Christian [Confessions III. Perhaps most striking of all, Augustine bequeathed to the Latin West a voluminous body of work that contains at its chronological extremes two quite dissimilar portraits of the human condition. In the beginning, there is a largely Hellenistic portrait, one that is notable for the optimism that a sufficiently rational and disciplined life can safely escape the ever-threatening circumstantial adversity that seems to surround us. Nearer the end, however, there emerges a considerably grimmer portrait, one that emphasizes the impotence of the unaided human will, and the later Augustine presents a moral landscape populated largely by the massa damnata [De Civitate Dei XXI. The sheer quantity of the writing that unites these two extremes, much of which survives, is truly staggering. There are well over titles [listed at Fitzgerald , pp. It is arguably impossible to construct any moderate sized and manageable list of his major philosophical works that would not occasion some controversy in terms of what is omitted, but surely any list would have to include Contra Academicos [Against the Academicians, 391 C. Born in C. He subsequently taught rhetoric in Thagaste and Carthage, and in he made the risk-laden journey from Northern Africa to Rome, seeking the better sort of students that was rumored to be there. Disappointed by the moral quality of those students academically superior to his previous students, they nonetheless had an annoying tendency to disappear without paying their fees , he successfully applied for a professorship of rhetoric in Milan. After this separation, however, Augustine abruptly resigned his professorship in claiming ill health, renounced his professional ambitions, and was baptized by Bishop Ambrose of Milan on Easter Sunday, 387, after spending four months at Cassiciacum where he composed his earliest extant works. Shortly thereafter, Augustine began his return to Northern Africa, but not before his mother died at Ostia, a seaport outside Rome, while awaiting the voyage across the Mediterranean. Not too long after this, Augustine, now back in Thagaste, also lost his son . The remainder of his years would be spent immersed in the affairs and controversies of the Church into which he had been recently baptized, a Church that henceforth provided for Augustine the crucial nexus of relations that his family and friends had once been. In 395, Augustine was reluctantly ordained as a priest by the congregation of Hippo Regius a not uncommon practice in Northern Africa , in he was made Bishop, and he died August in Hippo, thirty-five years later, as the Vandals were besieging the gates of the city. However, when Augustine himself recounts his first thirty-two years in his Confessions, he makes clear that many of the decisive events of his early life were, to use his own imagery, of a considerably more internal nature than the relatively external facts cited above. From his own account, he was a precocious and able student, much enamored of the Latin classics, Virgil in particular [Confessions I. For Augustine, the problem was of a more general and visceral sort: In this sense, the wisdom that Augustine sought was a common denominator uniting the conflicting views of such Hellenistic philosophical sects as the Epicureans, Stoics, Skeptics, and Neoplatonists though this is a later title such as Plotinus and Porphyry, as well as many Christians of varying degrees of orthodoxy, including very unorthodox gnostic sects such as the Manicheans. Augustine himself comes to spend nine years as a hearer among the Manicheans [see Brown , pp.

The Manicheans proposed a powerful, if somewhat mythical and philosophically awkward explanation of the problem of evil: By means of sufficient insight and a sufficiently ascetic life, however, one could eventually, over the course of several lives, come to liberate the Light within from the surrounding Darkness, thus rejoining the larger Light of which the soul is but a fragmented and isolated part. As Augustine recounts it in the Confessions [see Confessions V. De Moribus Ecclesiae Catholicae 1], he became disenchanted with the inability of the Manichean elect to provide sufficiently detailed and rigorous explanations of their cosmology. As a result, he began to drift away from the sect during his sojourn in Rome, flirting for awhile with academic skepticism [Confessions V. When Augustine eventually comes to write about the Manicheans, there are three features upon which he will focus: According to Augustine, this latter identification not only serves to render the human soul divine, thereby obliterating the crucial distinction between creator and creature, but it also raises doubts about the extent to which the individual human soul can be held responsible for morally bad actions, responsibility instead being attributed to the body in which the soul itself quasi material is trapped. These uncertainties notwithstanding, Augustine himself makes it clear that it was his encounter with the books of the Platonists that made it possible for him to view both the Church and its scriptural tradition as having an intellectually satisfying and, indeed, resourceful content. In his earliest writings [e. Contra Academicos, C. But by the time he composes the Confessions – C. Part of this gradual change of attitude is attributable to his detailed study of scriptural texts especially the Pauline letters , as well as his immersion in both the daily affairs of his monastic community and the rather focused sorts of controversies that confronted the Church in the fourth and fifth centuries. Beyond his already noted, protracted battle with Manicheanism, there is also his involvement in the North African Donatist controversy [see Brown , pp. In this latter case, serious issues arose regarding the role of grace and the efficacy of the unaided human will, issues that, as we will see, played an important role in shaping his views on human freedom and predestination. These important qualifications notwithstanding, the fact remains that this Platonism also provided Augustine with a philosophical framework far more pliable and enduring than he himself is willing to admit in his later works. Moreover, this framework itself forms an important part of the philosophical legacy that Augustine bequeathed to both the medieval and modern periods. Sometimes this feature is easy to overlook, but its significance is obvious enough: Without this, the work would be rather like a map that is as large as of that of which it is intended to be a map, thus making it not a map at all. In order to bring some coherence to the material at hand, there must be some effort to provide an interpretive framework for the material, focusing on relevant and important highlights while omitting others that would obscure those highlights. The second reason is more specific to Augustine: Presented as an extended prayer to God, Augustine is not merely telling the tale of his own life, but also using his life as a concrete example of how an isolated individual soul can extricate itself from this state and Neoplatonically ascend to a unity that overcomes this isolation and attains to rest in God. Also important are the means by which he seeks to accomplish this task: With respect to his relations with others, he begins with his ruminations upon infancy and the isolation of the infant, which initially seems to be overcome by the acquisition of language. But as he tells the story in Confessions I, language is itself a double-edged sword: Although Augustine is aware by the time he writes the Confessions that there are differences between Christianity and Neoplatonism, he nonetheless makes it clear that the latter makes it possible for him to regard the former as intellectually credible. The overarching Neoplatonic strategy of the first nine Books goes a long way toward explaining what might otherwise be a strange shift in the remaining four books, in which the autobiography recedes into the background. This strategy, combined with the related themes of the role of language and texts in his spiritual progress, also explains the fact that Books XII and XIII are devoted to exegesis of the first chapters of Genesis. As noted above, Augustine at first disdained biblical texts owing to their rhetorical inelegance. Now, however, having a framework that enables him to discern their actual inner depth, these texts acquire a prominence and indicate the culmination of that long journey which began with his immersion into the double-edged domain of human speech and written word. Moreover, these final Books, along with the Neoplatonic framework he discovers in Book VII though, as we have seen, it also governs the structure of the Confessions as a whole , enable him to further probe the puzzles that he raised in the first five chapters of Book I. In short, what once struck Augustine as the texts least worthy of attention have now

become the texts of all texts, because they contain the answers to the questions and problems that have propelled him from the very beginning of the Confessions. As Augustine recounts it Confessions VI. It is also quite possible that it would serve him in the pursuit of a more worldly career. But it could serve as an impediment to social advancement unless it was replaced by the more formal arrangement of matrimonium. Hence, the obvious questions: Why the abruptness of the dismissal? Why not enter with his companion of thirteen years into the more respectable relation of matrimonium? Why anonymity for someone with whom he had spent thirteen years in a monogamous relationship? Why the headlong rush into another, temporary relationship, whereas his companion returned to Northern Africa vowing never to enter into another relationship? Was their devotion to one another as asymmetrical as Augustine seems to suggest? Was he as callous and as indifferent as the text seems to present him? If one examines the text closely enough, there do seem to be answers to these questions: Also, what was the social class of his companion? Differences in social class could often prevent the transition from a relation of concubinatus to one matrimonium. On a more textual level, it is obvious that Monica played a significant role in the arrangement of the more respectable marriage for which Augustine was obliged to wait. More importantly, Augustine makes it clear at VI. As for the anonymity of his companion, this is not unusual in the Confessions as a whole. When he does mention names e. Alypius, Nebridius, Faustus, Ambrose, Monica, they are names that would have been known to contemporary readers of the text. But they also serve as character types: A prime example is his protracted discussion of an anonymous friend in Book IV, a pathos-ridden account that leaves no doubt about the importance of the relationship to Augustine. But perhaps of most importance are two textual points which indicate the significance of this relationship to Augustine. The first is that the episode he recounts is of an intensely personal nature, not necessary to the rhetorical strategy of the Confessions as a whole. But even more important is the imagery employed in his account of the separation. There are only two passages in the entire Confessions which employ similar imagery: Given the imagery employed here, there does look to be some philosophical import in this otherwise intensely personal passage: Needless to say, this does not completely exonerate Augustine. And if the choice was his own, then he appears even more culpable. In the Confessions, where Augustine gives his most extensive discussion of the books of the Platonists, he makes clear that his previous thinking was dominated by a common-sense materialism [Confessions IV. It was the books of the Platonists that first made it possible for him to conceive the possibility of a non-physical substance [Confessions VII. In addition, the books of the Platonists provided him with a metaphysical framework of extraordinary depth and subtlety, a richly-textured tableau upon which the human condition could be plotted. It can both account for the obvious difficulties with which life confronts us, while also offering grounds for a eudaimonism notable for the depth of its moral optimism. In this respect, the ontology that Augustine acquired from the books of the Platonists is, in terms of its intent, not all that different from the materialism of the Epicureans, Stoics, and even the Manicheans. What sets the Neoplatonic ontology apart, however, is both the resoluteness of its promise and the architectonic grandeur with which it complements the world of visible appearances. In spite of the dualistic implications, this is clearly not intended to be a dualistic alternative to the moral dualism of the Manicheans and other gnostics [see, e. Instead, the divide is situated within what is supposed to be a larger, unified hierarchy that begins with absolute unity and progressively unfolds through various stages of increasing plurality and multiplicity, culminating in the lowest realm of isolated and fragmented material objects observed with the senses [see Bussanich, pp. Thus, for Augustine, God is regarded as the ultimate source and point of origin for all that comes below. Augustine, especially in his earlier works, focuses upon the contrast between the intelligible and the sensible, enjoining his reader to realize that the former alone holds out what we seek in the latter: Indeed, in the vision at Ostia at Confessions IX. The intelligible realm, with God as its source, promises the only lasting relief from the anxiety prompted by the transitory nature of the sensible realm. Despite its dualistic overtones, the overall unity of the picture is central to its ability to provide a resolution of the problem of evil. The sensible world, for example, is not evil, nor is embodiment itself to be regarded as straightforwardly bad. The problem that plagues our condition is not that we are trapped in the visible world as it is for the Manicheans; rather, it is a more subtle problem of perception and will: Thus, we have a tendency to focus only upon the sensible, viewing it as a self-contained

arena within which all questions of moral concern are to be resolved. Because we fail to perceive the larger unity of which the sensible world is itself a part, it easily becomes for us though not in itself a realm of moral danger, one wherein our will attaches itself to transitory objects that cannot but lead to anxiety [Confessions VII. Given the essentially rational nature of the human soul and the rational nature of the Neoplatonic ontology, there is nonetheless room for optimism.

Chapter 4 : Introduction to Superstring Theory - E. Kiritsis

Introduction The classical variables of LQG The quantum algebra of LQG Outlook and Conclusion/Problems Elementary variables Duality of geometric objects.

Purpose[edit] Socionics provides a means of predicting the character of relations and degree of business compatibility, information sharing and psychological compatibility of people before their joining in one collective group, i. Mayrhofer, socionics is considered one of the four most popular models of personality including cybernetic theory Maruyama, five-factor model, Big Five" and typology Myersâ€™Briggs Type Indicator , deserving special attention because of its importance in the study of personality. Maw socionics is a science developed by Austra Augustinavičiute in the s. It was found that the nature and development of interpersonal relationships both professional and personal are far from random. Hochnadel, "socionics is not so much a theory of personalities per se, but much more a theory of type relations providing an analysis of the relationships that arise as a consequence of the interaction of people with different personalities. Monastyrsky treats socionics as pre-science. At the same time, L. Monastyrsky himself proposes to pay attention to "the concept of socionic type". Pletuhina defines socionics as the study about the information interaction of the human psyche with the outside world, between people. She also defines it as the doctrine of psychological types of people and the relationships between them, as well as notes that the particular quality of socionics is that it considers the innate qualities of the human psyche, including the personality type, which cannot be arbitrarily changed without prejudice to the mental and physical health. Relevant discussion may be found on the talk page. Please do not remove this message until conditions to do so are met. Unlike MBTI, which is widely criticized [20] for the lack of validity and utility, [21] the socionics model, which is in some use in Eastern and Western Europe, as well as throughout Eurasia, Central Asia, and the Baltic nations, [22] strives to stay very close to the original descriptions and type labels suggested by Carl Jung. This field of inquiry has been called socionics. Shmelev in his review of the book "MBTI: Myers notes the highest popularity of socionic books in Russian and remarks that their authors are appealing to the literary and artistic associations of the mass reader, in contradistinction to books on MBTI, which contain the empirical and statistical data on the types distribution in professional groups. Bogomaz considers the socionic typology as a version of post-Jung typology and believes that on a number of criteria it is more perspective than MBTI for the study of the differences between people, because it expands the volume of the typological features and offers an opportunity to form various typological groups with different motivations, attitudes, temperament, perception of information and thinking styles. It is also important the existence of preconditions to study intertype relations, that are substantially not developed within MBTI. Bogomaz thinks that the creation of the theory of intertype relationships is undoubtedly contribution of A. Augustinavičiute to the development of Jung typologies. According to the catalog DisserCat [27] from to in Russia, Ukraine and other countries were defended more than doctoral theses, [28] [29] using methods and analytic tools of socionics in management, education, psychology, anthropology, medicine, philosophy, philology , sports, and law. The International Institute of Socionics [33] [34] IIS was established in in Kiev , Ukraine , and for years has held the most prominent annual international socionics conference. The institute pursues the continued development of socionics theory, renders commercial consulting services, and since has released a bimonthly journal Socionics, Mentology, and Personality Psychology six issues a year. Topics in the journal usually range anywhere from studies and applications of the primary principles of socionics to speculative extensions of the theory. In the institute established an International Academic Board to issue bachelors, masters, and PhD degrees in socionics. The local trainings are conducted for persons of sociotypes having their strengths in respective functions Fi or Ni, respectively. In official School of System Socionics web site was founded by I. Since then it has become creative laboratory of practical socionics and platform for training socionistsâ€™experts in TIM identification. The School has developed Methodology of remote TIM Identification, introduced a school-standard identification protocol and computer-aided type identification techniques. Karpenko note that socionics is taught in more than universities [30] [48] [49] in Russia, Ukraine,

Kazakhstan , and other CIS countries, as well as in Bulgaria, Latvia, Lithuania, Estonia, Romania, either as a separate course, or, in view of the applicability of the various methods of socionics Humanities , as part of educational courses on Sociology , Pedagogy , Social Psychology , Management and Psychology of Management, human resource management , Conflictology , social services and Tourism , Computer Science and Programming , Philosophy , Neurology , Journalism , Library Science , Social Work , Didactics and others, including Engineering disciplines. There are new areas of research, such as educational socionics, [59] [60] sociological socionics, [61] aviation socionics, [62] [63] library socionics, [64] [65] technical socionics, linguistic socionics, penitentiary socionics, and socionics in other subject areas. Socionics is used in education process, not only as a tool for teachers to manage the learning process, [66] but also as a basis for the development and improvement of education and training. Komissarova, [73] used for analysis of individual lexicon of language personality. Due to the variety of applications of socionics, its concepts and information models, in the s, Bukalov was proposed to distinguish socionics of personality, or differential socionics, and generalized, more abstract integral socionics. A number of organizations which periodically hold conferences in Kiev, Moscow, St. Petersburg , and other cities. Since , there is a resource of the International Institute of Socionics, Socionic. Dmitri Lytov, creator of the multi-language socionics resource, Socioniko. Maw socionics used to form the surgical ambulances [6] In recent decades interest to socionics tools in German, Russian, Ukrainian and other companies has grown dramatically. For example, experimental research of aircraft control services, which was conducted at St. Petersburg State University had shown that quality of interaction integral controller which was calculated on the basis of SMoIR socionics model of intertype relationships is correlated with sociometric data colour test relations. Authors of these works point out that modeling of situations in groups can be done in two ways: Choice of approach depends on the goals set. If a goal is to analyse a situation in the team and the interaction between its members, then the best choice is the intertype analysis between members [94] [95] [96] [97] [98] [99] [] [] [] [clarification needed] [] [] Family socionics[edit] Socionics allocates 16 types of the relations "â€” from most attractive and comfortable up to disputed. The understanding of a nature of these relations helps to solve a number of problems of the interpersonal relations, including aspects of psychological and sexual compatibility. The researches of married couples by Aleksandr Bukalov , Olga Karpenko, and Galina Chykyrysova, have shown that the family relations submit to the laws, which are opened by socionics. The study of socionic type allocation in casually selected married couples confirmed the main rules of the theory of intertype relations in socionics. To provide high security level on nuclear power plants by optimizing the human factor defined a number of ergonomic factors which have an influence on a person in a modern management system: Each of these factors and especially their combination leads to extreme modes and related stresses not to mention other circumstances that faced operational staff of plants. However, those approaches are difficult to implement because of financial and timing loss. Except factors caused by external operational activity there are many social stressors as well. In order to reduce this kind of stressor, on some plants, for example on Zaporizhia Nuclear Power Plant were implemented testing, which were conducting communication trainings and other socionics methods. Teachers armed with socionics technology can consciously establish relationships with other people and increase efficiency of their pedagogical skills. Problem of forming space crews by socionics methods was a central topic at the International conference on space researches, [] at the Space forum and at the conference "Piloted flights into Space", which were taken place in Star City and in The Russian Academy of Sciences , also these issues were taken a part in works of Doctor of medical science professor Bohdashevsky, Doctor of philosophy Bukalov A. This reasons leads to development of such branch as aviation socionics, which is a part of training process for crew members of aircraft. According to order of the Ministry of transport of Russian Federation Flight Standards Department approved a default application "Training of pilots in the field of human factor", which expects basic socionics knowledge not only among pilots and other crew members, but also prognosing interaction in air crews by socionics methods, including such topics: Aviation socionics and its place in solving human factor": Augustinavichiute and sources of socionics. Current status of socionics science. Sociotypes and its classification. Socionic components of professional characteristics. The document, which regulate the formation flight crews. Socionics approaches in forming teams: Forming teams in the

concept of purposeful systems. Socionics model of human being. Socionics model of a crew member. Crew members as a collective operator. Socionics characteristic of crew members. Evaluation of effective collaboration. Conditions to reach synergism. Socionics prognosis in evaluation crew members. Socionics model of intertype interactions. Socionics model of crew members and its evaluation. Using socionics model of intertype interactions to form effective team. Socionics aspects of pilot-aircraft interaction. Petersburg State University of Culture and Arts; aircrews of airlines: This data base represents result of 10 years of scientific work. In their researches authors are relying on fundamental works of the Kyiv School of Socionics, International Institute of Socionics, publications in journals "Socionics, mentology and personal psychology", "Management and staff: Psychological Types Carl Jung describes four psychological functions that are capable of becoming applicable psychically, but to differing degrees in individuals: This distinction is based on how people invest energy: But in his book "Psychological Types" he described in detail only 8, distinguished by the 8 possible dominant functions. Contrary to Socionics and MBTI, Jung did not conclude that the types had two introverted functions and two extroverted functions. He instead outlined that extroverted personality types had a Dominant extroverted function, an Auxiliary introverted function, and two Inferior introverted functions that are necessarily retarded. Often, other socionists[who? Given the division of aspects of the absolute between Extroverted "black" and Introverted "white" , being four times two, their number is eight.

Chapter 5 : PDF for hep-th/

The concept of duality plays a key role in important recent developments in the quantum theories of fields [1], string duality [2], M-theory and branes [3], M(atrrix) theory [4], and the AdS/CFT correspondence [5].

It is important to remember that Marx used this term in a way radically different from that of many later writers, in particular Keynes. On such a definition, classical economics culminated with Marshall and Pigou. Rather he wished to stress that the methodological limitations of classical political economy increasingly paralysed it in the face of this new phenomenon. The ahistorical nature of political economy The fact that political economy was unable to grasp the significance of the emergence of the working class and the implications of its struggle against capital only underscored, for Marx, the grave methodological and philosophical weakness which he detected in the work of Ricardo. It is, of course, the case that the attack upon Ricardianism after was increasingly inspired by narrow ideological and political considerations, a point rightly stressed by Meek. But this is by no means the end of the story. For it is also undoubtedly the case that the opponents of Ricardo Bailey is a good example were able to seize upon real, unresolved, contradictions in the Ricardian system. It is this aspect of the problem on which we will concentrate. It is one anticipated, though not as yet exhaustively worked out, in *The Poverty of Philosophy* where we find the following: Economists express the relations of bourgeois production, the division of labour, credit, money, etc. Economists explain how production takes place in the above mentioned relations, but what they do not explain is how these relations themselves are produced, that is the historical movement that gave them birth. They are historical and transitory products. This attack by Marx upon the ahistorical standpoint of the classical economists must be carefully considered, for it can easily be misunderstood. Many have taken Marx simply to mean that Smith and Ricardo were either unaware of or not interested in pre-capitalist economic forms of production. This is, however, quite wide of the mark; Smith was concerned perhaps more than anybody else to demonstrate the superiority of the capitalist form of production as a means of creating wealth in contrast with feudal economy. Marx, as a materialist, understood that the categories of political economy were a product of historical development and specifically of the historical development of the social relations of production. This point must be emphasised if only because of the attack launched by Althusser and others against this conception, which we believe to be at the very centre of Marxism. In his review of the history of political economy, Marx at all times insists upon the objectivity of the categories of the science: Marx was here stressing a vital point — namely, that science always necessarily develops through definite forms outside the individual consciousness. Men always start with certain definite aims and motives and the leading figures of political economy were, in this respect, no exception. But the history of political economy cannot be reduced to a review of the conscious aims and motives of its leading representatives. Science develops always under determined historical conditions in that it must always commence its work in and through the categories which have been historically handed down to it, categories which reflect the work of all previous thinkers in the field. Marx attacked the political economists precisely because they took the categories of their science uncritically. His charge of ahistoricism meant essentially this: Political economy took its categories for granted precisely because it did not know the historical process through which they had been created. It was unable to reproduce this real process in thought and therefore saw in the categories of bourgeois political economy the expression of the essence of bourgeois production. In short, it fell under the illusion that the relations of modern economy not only appeared according to the categories of political economy, but that these relations really were as they appeared. Marx, in his review of the work of Petty, Smith, Ricardo and others, rejected this essentially idealist position. He is not interested in past thinkers merely from the point of view of tracing the origin and growth of his own ideas, nor merely in paying his intellectual debts, as it were. The *Theories of Surplus Value* intended by Marx, we remember, as a fourth volume of his work is not a history of economic thought in the conventional sense. It was, Engels tells us, A detailed critical history of the pith and marrow of Political Economy, the theory of surplus-value and develops parallel with it, in polemics against predecessors, most of the points later investigated separately in their logical connection in the manuscripts for Books II and III.

Engels, Preface to II. This was a task which could be carried out only by somebody conscious of the fact that these categories were themselves a product and a manifestation of the actual emergence of the social relations of capitalist production. At one point Marx draws attention to the fact that for thousands of years "ever since the appearance of commodity production in the ancient world" men had striven to discover the nature of value. It was only in the eighteenth century that they were able "in the shape of political economy" to make significant progress along this road. And this progress was made possible only because the social conditions in which political economy operated "the fact that commodity production was becoming predominant" made possible the clarification of issues which previously had, of necessity, remained obscure. Now when Marx criticised the political economists for the ahistorical nature of their work, he meant that they could not grasp that their own science had emerged and developed only under these determinate conditions. Political economy laboured under the serious misapprehension of all bourgeois thought that the categories of its subject value, capital, money, labour, etc. They conflated the laws specific to a determinate mode of production with laws they thought to be universally valid; they confused social with natural law. Political economy was fond of the parable of Robinson Crusoe. Marx did not object to the indulgence in this type of story as such. He did object, however, to the fact that the modern eighteenth-century individual was projected back into history. The individual was not conceived as developing historically through definite social relations, but as posited once and for all by nature. History was confused with nature; pre-capitalist economic forms were treated with the same disdain as Christians treated pre-Christian religious forms. Now in drawing attention to this ahistorical outlook of Ricardo and others, Marx was not making a general criticism about the starting point of these thinkers which, once having been made, could be left behind, as it were. For Marx, the ahistoricism of political economy is a fatal weakness which ultimately permeates every aspect of its work and is the ultimate source of its disintegration. The main stages in the history of political economy For Marx, Physiocracy was the first genuine school in political economy. It consisted of a group of writers all of whom sought to provide a critique of mercantilism, a system which had imagined that value and its magnitude resulted from exchange. Against this the Physiocrats counterposed the notion that forms of production were physiological forms arising from the necessities of production and independent of will and politics. They thereby turned the attention of economics towards a study of the social conditions of production. We know of course that the decisive weakness of this school lay in the fact that this production was seen only in its immediate, concrete form; for according to Quesnay and his followers labour on the land was alone productive of value, a conception which persisted with Smith, although in the case of the latter it occupies only a subordinate position. This narrowness in the Physiocratic view was, Marx held, a reflection of the then limited stage reached in eighteenth-century French economy which remained predominantly based upon agriculture. Despite this limitation, the work of the Physiocrats none the less constituted a decisive step forward for all the work that was to follow in the investigation of capitalist economy. This was so because the source of contradictions in the Physiocratic system stemmed from its efforts to analyse feudalism from a consistently bourgeois standpoint. When Marx turns to deal with the work of Adam Smith he again stresses that the advances which this work involves have their ultimate source in the economic changes taking place in the latter half of the eighteenth century. The Physiocrats had been able to begin the investigation of surplus value the difference between the value of labour power and the value created by it only because it appears most palpably in the sphere of agriculture, the primary branch of production. The total means of subsistence which the labourer consumes is smaller than the total means of subsistence he produces. However, in manufacturing "which was emerging much more rapidly in Britain than in France" during this period the worker does not directly produce either his means of subsistence or an excess of them. Under manufacturing the process is mediated, is an indirect one, operating through the various acts of circulation of all commodities within the capitalist system. And this was equally true in the case of surplus value; while this surplus appeared in the form of a surplus of use-values agricultural products no abstract conception of its nature was either possible or necessary for pre-Smithian economics. Specifically, the advance marked by *The Wealth of Nations* was to be found in the fact that it grasped that labour in general and not one of its forms is value-creating. Marx again draws attention in his commentary on Smith to the material basis for this step forward. But as in the case of

the French economists, so now in the case of Smith: Marx sees definite limits to these important advances. Marx regarded Smith as a transitional figure and one to whom all later schools, including that of modern neoclassical theory, can, with some justification, trace their origin. From the point of view of the method of political economy Smith continued and extended the classificatory work of his predecessors, notably that of William Petty. At the same time Smith was the first to attempt an abstract analysis of the capitalist mode of production – a search for the laws, that is the regularities, of its development. It was this latter side of his work which was to be carried forward by Ricardo some fifty years later. On occasions, Smith sees the value of commodities as determined by the quantity of labour involved in their production, as when he gives the example of beaver and deer: In that early and rude state of society which precedes both the accumulation of stock and the appropriation of land, the proportion between the quantities of labour necessary for acquiring different objects seems to be the only circumstance which can afford any rule for exchanging them for one another. If amongst a nation of hunters, for example, it usually costs twice the labour to kill a beaver which it does to kill a deer, one beaver should naturally exchange for or be worth two deer. Smith, *Value, Studies by Marx* In other places, however, Smith drops this labour exchange theory in favour of a labour command notion of value, or, what amounted to the same thing, a theory which sees exchange-value as determined by the level of wages. That is to say, the appearance of wages along with profits and, once private property and land is established, rent, for Smith overthrow the determination of value by labour-time. In every state of society the price of every commodity finally resolves itself into some one or other or all of these three parts; and in every improved society all the three enter more or less, as component parts, into the price, of the far greater part of commodities. This he did by endeavouring to demonstrate that the determination of value by labour-time could be made consistent with the existence of wages, profits and rent. Indeed, he went further and attempted to show that the determination of value by labour-time was the only sound basis on which the distribution of the social product between wages, profit and rent could properly be explained, a task which he took to be the major one facing political economy. From the very outset of the *Principles* Ricardo notes the different and ultimately incompatible conceptions of value in *The Wealth of Nations*. Adam Smith, who so accurately defined the original source of exchangeable value and who was bound in consistency to maintain that all things become more or less valuable in proportion as more or less labour was bestowed on their production, has himself erected another standard measure of value, and speaks of things being more or less valuable in proportion as they will exchange for more or less of this standard measure. Sometimes he speaks of corn, at other times of labour, as a standard measure; not the quantity of labour bestowed on the production of an object, but the quantity which it can command in the market: Food and necessaries in this case will have risen per cent if estimated by the quantity of labour necessary to their production, while they will scarcely have risen in value if measured by the quantity of labour for which they will exchange. Ricardo knew that the duality to which he was here drawing attention had to be eliminated if political economy was to progress as a science. It was through his efforts to grapple with the theoretical problems left by Smith that Ricardo was forced to develop a quite different method in his analysis of economic phenomena. Political economy, Ricardo came to insist, must begin with one fundamental principle – the determination of value by the quantity of labour bestowed upon the production of a commodity. All those economic phenomena from the realm of competition which appear to contradict this law must be rendered compatible with it, and the law of value thus made the axis of a scientific political economy. The general method adopted by Ricardo in his *Principles* is as follows: He examines the extent to which the law of value is in contradiction with the manner in which it appears in competition, as it presents itself to the unscientific observer. Ricardo insists, Marx tells us, that, The basis, the starting point for the physiology of the bourgeois system – for understanding its internal organic coherence and life-process – is the determination of value by labour-time. Ricardo starts with this and forces science to get out of the rut, to render an account of the extent to which the other categories – the relations of production and commerce evolved and described by it, correspond to or contradict this basis, this starting-point. Marx, *Theories of Surplus Value* The nature of this method can be illustrated by reference to the example of rent. Here Ricardo is about to consider the extent to which, if at all, the existence of the concrete category, rent, undermines or at least forces a modification of the basic starting point for political

economy the law of value. We have already noted that in his opening chapter he deals with a series of phenomena to discover whether they can be reconciled with the law of value. Ricardo considers wages and considers that their level is independent of the value of commodities. Here was a significant step forward from Smith, who continually allows a consideration of the wage level to intrude into his analysis. This point is elaborated a little later when we find: The proportion which might be paid for wages is of the utmost importance in the question of profits; for it must at once be seen, that profits would be high or low, exactly in proportion as wages were low or high; but it could not in the least affect the relative value of fish and game as wages would be high or low at the same time in both occupations. Marx, after reviewing the structure of this chapter, makes what is a crucial observation: He did, however, find fault with the forced and inadequate nature of the abstractions which Ricardo employed. It was because he commenced by assuming the relations of bourgeois economy that Ricardo tended to counterpose directly the outward appearance taken by these relations on the surface of society with their inner source, which Ricardo had identified as the law of value. Or, to put this same point another way, Ricardo fails to trace the manifold and contradictory links mediations between this relatively hidden inner determination law of value and the immediate phenomena, or phenomenal forms, in which this law finds its expression prices, profits, interest, rent, etc.

Chapter 6 : Download [PDF] The Classical Outlook Free Online | New Books in Politics

outlook outlook A t the beginning of the twentieth cen- wave-particle duality: light exhibits differ- classical science has adopted a reduction-ist approach.

Master morality[edit] Nietzsche defined master morality as the morality of the strong-willed. Nietzsche criticizes the view which he identifies with contemporary British ideology that good is everything that is helpful, and bad is everything that is harmful. He argues proponents of this view have forgotten the origins of its values and it is based merely on a non-critical acceptance of habit: He continues explaining that in the prehistoric state "the value or non-value of an action was derived from its consequences" [1] but ultimately "[t]here are no moral phenomena at all, only moral interpretations of phenomena. The essence of master morality is nobility. Master morality begins in the "noble man", with a spontaneous idea of the good; then the idea of bad develops as what is not good. Slave morality[edit] Masters are creators of morality; slaves respond to master-morality with their slave-morality. Unlike master morality, which is sentiment, slave morality is based on re-sentiment â€”devaluing that which the master values and the slave does not have. As master morality originates in the strong, slave morality originates in the weak. Because slave morality is a reaction to oppression, it vilifies its oppressors. Slave morality is the inverse of master morality. As such, it is characterized by pessimism and cynicism. Slave morality is created in opposition to what master morality values as "good". It does not seek to transcend the masters, but to make them slaves as well. The essence of slave morality is utility: Nietzsche saw this as a contradiction. Since the powerful are few in number, compared to the masses of the weak, the weak gain power by corrupting the strong into believing that the causes of slavery viz. By saying humility is voluntary, slave morality avoids admitting that their humility was in the beginning forced upon them by a master. Biblical principles of humility, charity, and pity are the result of universalizing the plight of the slave onto all humankind, and thus enslaving the masters as well. It is this inversion of values with which is involved the employment of the word for "poor" as a synonym for "holy" and "friend" that the significance of the Jewish people resides: With them, there begins the slave revolt in morals. According to Nietzsche, ancient Greek and Roman societies were grounded in master morality. He calls the heroes "men of a noble culture", [7] giving a substantive example of master morality. Historically, master morality was defeated, as the slave morality of Judaism and Christianity spread throughout the Roman Empire. The essential struggle between cultures has always been between the Roman master, strong and the Judean slave, weak. Nietzsche condemns the triumph of slave morality in the West, saying that the democratic movement is the "collective degeneration of man". This resentment Nietzsche calls "priestly vindictiveness", [9] which is based on the jealous weak seeking to enslave the strong, and thus erode the basis for power itself by pulling the powerful down. Such movements were, according to Nietzsche, inspired by "the most intelligent revenge" of the weak. He thought that the revaluation of morals would correct the inconsistencies in both master and slave moralities. But he asserted that for the individual, master morality was preferable to slave morality. Walter Kaufmann disagrees that Nietzsche actually preferred master morality to slave morality.

Chapter 7 : Masterâ€™slave morality - Wikipedia

This adaptive outlook is essentially a form of "shutting down," an emotional "graying" of reactions. The blasÃ© attitude, while an adaptive outlook, is coupled with a money economy that further hinders the development of an emotionally meaningful life.

Helicity string partition functions Acknowledgments 3 1 Introduction String theory has been the leading candidate over the past years for a theory that consistently unifies all fundamental forces of nature, including gravity. In a sense, the theory predicts gravity and gauge symmetry around flat space. Moreover, the theory is UV- finite. The elementary objects are one-dimensional strings whose vibration modes should correspond to the usual elementary particles. At distances large with respect to the size of the strings, the low-energy excitations can be described by an effective field theory. Thus, contact can be established with quantum field theory, which turned out to be successful in describing the dynamics of the real world at low energy. I will try to explain here the basic structure of string theory, its predictions and problems. In chapter 3 a description of classical bosonic string theory is given. The oscillation modes of the string are described, preparing the scene for quantization. In chapter 4, the quantization of the bosonic string is described. All three different quantization procedures are presented to varying depth, since in each one some specific properties are more transparent than in others. I thus describe the old covariant quantization, the light-cone quantization and the modern path-integral quantization. In chapter 6 a concise introduction is given, to the central concepts of conformal field theory since it is the basic tool in discussing first quantized string theory. In chapter 8 the calculation of scattering amplitudes is described. In chapter 9 the low-energy effective action for the massless modes is described. In chapter 10 superstrings are introduced. They provide spacetime fermions and realize supersymmetry in spacetime and on the world-sheet. I go through quantization again, and describe the different supersymmetric string theories in ten dimensions. In chapter 1 gauge and gravitational anomalies are discussed. In particular it is shown that the superstring theories are anomaly-free. In chapter 12 compactifications of the ten-dimensional superstring theories are described. Supersymmetry breaking is also discussed in this context. In chapter 13, I describe how to calculate loop corrections to effective coupling constants. This is very important for comparing string theory predictions at low energy with the real world. In chapter 14 a brief introduction to non-perturbative string connections and non-perturbative effects is given. This is a fast-changing subject and I have just included some basics as well as tools, so that the reader orients him/her self in the web of duality connections. Finally, in chapter 15 a brief outlook and future problems are presented. I have added a number of appendices to make several technical discussions self-contained. In Appendix B, I rederive the various lattice sums that appear in toroidal compactifications. In Appendix C the Kaluza-Klein ansatz is described, used to obtain actions in lower dimensions after toroidal compactification. In Appendix E, BPS states are described along with their representation theory and helicity supertrace formulae that can be used to trace their appearance in a supersymmetric theory. In Appendix F facts about elliptic modular forms are presented, which are useful in many contexts, notably in the one-loop computation of thresholds and counting of BPS multiplicities. In Appendix G, I present the computation of helicity-generating string partition functions and the associated calculation of BPS multiplicities. Finally, in Appendix H, I briefly review electricâ€™magnetic duality in four dimensions. I have not tried to be complete in my referencing. The focus was to provide, in most cases, appropriate reviews for further reading. Only in the last chapter, which covers very recent topics, I do mostly refer to original papers because of the scarcity of relevant reviews. There were some regularities observed, though: Such an amplitude depends on the flavor quantum numbers of hadrons for example SU 3. Consider the flavor part, which is cyclically symmetric in flavor space. For the full amplitude to be symmetric, it must also be cyclically symmetric in the momenta π . Consider a t-channel contribution due to the exchange of a spin-J particle of mass M. Then, at high energy Thus, this partial amplitude increases with s and its behavior becomes worse for large values of J. Any finite sum of amplitudes of the form 2. However, if one allows an infinite number of terms then it is conceivable that the UV behavior might be different. Moreover such a finite sum has no s-channel poles. The poles in 2. It can

also be checked that the high-energy behavior of the Veneziano amplitude is softer than any local quantum field theory amplitude, and the infinite number of poles is crucial for this. It was subsequently realized by Nambu and Goto that such amplitudes came out of theories of relativistic strings. However such theories had several shortcomings in explaining the dynamics of strong interactions. At the same time, experimental data from SLAC showed that at even higher energies hadrons have a point-like structure; this opened the way for quantum chromodynamics as the correct theory that describes strong interactions. Parte 1 de

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In this discourse, the narrator uses motorcycle maintenance as a means of explaining the way the classical outlook manifests itself in human affairs. Active Themes The narrator goes to a friendly mechanic's shop to get a motorcycle part, and notices that the mechanic works very efficiently even though his shop is disorganized.

He was, they claimed, a banal and morally weak composer who had been forced to sacrifice his creative individuality in order to survive the oppressive demands of the Soviet system. As a spokesman for the oppressed Soviet people, Shostakovich forged a unique musical language drawing heavily upon images of brutal irony, hysterical anger, bitter introspection and mock optimism. It was an idiom that was capable of subtle innuendo, yet its raw materials are derived from familiar models. More contemporary influences also prevailed – the austerity of Stravinsky, the sardonic wit of Prokofiev, and the frenzied expressionism of Berg especially spring to mind. The link with Mahler is crucial. Both composers were fond of juxtaposing passages of banality and profundity to disturbing effect. Everything about the composer seems to be cloaked in ambiguity. Duality is of the essence. Indeed, the astonishing maturity of this work immediately brought Shostakovich into the spotlight. But at home the composer suffered something of a crisis as he struggled to fulfill his potential. Against the cultural background of the s, which in the Soviet Union appeared to encourage a liaison between revolutionary politics and the Western avant-garde, Shostakovich threw in his lot with the modernists. Although Shostakovich was exploiting his talents as a caricaturist, the introspective lyricism explored in the latter half of the First Symphony increasingly came to the fore. It appeared most powerfully in the desolate slow movement of the Cello Sonata. Yet the real turning-point was his second opera, *Lady Macbeth of Mtsensk*, composed during the same year. Initially hailed in his native country as the first truly Soviet opera, *Lady Macbeth* was acclaimed abroad, where it received highly successful performances in the USA and in Europe. But the tide soon turned against Shostakovich. Stalin was the root cause. Under his leadership, the Soviet regime rejected its former tolerance of modernism and the right to freedom of expression. *Lady Macbeth* with its strident musical idiom, its scenes of sex and violence, and grotesque caricatures of officialdom, hardly squared with such ideals. The crunch came after Stalin heard the opera in January and walked out before the final act. For a year Shostakovich remained *persona non grata*. Never again would he dare to complete an opera. But the crisis also forced him to rethink his whole creative outlook. It was a question of survival without compromising his integrity. First performed at a concert celebrating the 20th anniversary of the October Revolution, it was a triumphant success, satisfying the authorities with its simpler musical language. Yet the audience at the first performance interpreted the symphony very differently. This message of sorrow, suffering and isolation pervades the later symphonies – the wartime Leningrad No. The same issues are distilled, though in a more intimate manner, in the cycle of 15 string quartets which Shostakovich began writing after the Fifth Symphony. The sombre First Violin Concerto and the Fourth and Fifth Quartets, composed during this period, were consigned to the bottom drawer until the death of Stalin removed obstacles to their performance. With the change of leadership, a more tolerant artistic climate seemed to prevail. To the outside world, Shostakovich appeared to have settled his differences with a regime that lavished him with his state prizes. Yet in reality he never deviated from composing music of protest.

Chapter 9 : Marx's Critique of Classical Economics

The nature of this association cannot be pictured on a basis of classical mechanics, but is something entirely new. It would be quite wrong to picture the photon and its associated wave as interacting in the way in which particles and waves can interact in classical mechanics.