

# **S K E N È**

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Virtual Theatre

Edited by Sidia Fiorato

# SKENÈ Journal of Theatre and Drama Studies

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*Founded by Guido Avezzi, Silvia Bigliuzzi, and Alessandro Serpieri*

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SUSAN PAYNE\*

## What Does *Virtual* Actually/Really Mean?

Abstract

This essay is intended as an overview, a summary of the usage of the English word *virtual*, its relationship with its apparent antonym *real* and, in conclusion, its meaning in the phrase *virtual theatre*. Such a vast topic lends itself with difficulty to treatment within the confines of an essay so an attempt has been made to exploit and/or create several *files rouges* to aid the writing and reading of the article. The first one is the deliberate exploitation of the lexicographical scholarship of the *Oxford English Dictionary*, which forms, with its etymological and linguistic expertise, the backbone of the topic and includes the corroboration of the various quotations provided which document the history of each headword. Another leitmotif is the fundamental (and hopefully not redundant) assumption that the exemplification of the frequently ambiguous grammatical and semantic usage of the pair *virtual/real* is significant in the history of this usage in the philosophical discipline of ontology. And last but not least is the role the word *virtual* plays in the history of physics as well as metaphysics and the apparently symbiotic connection of ontology to the often equally enigmatic world of the behaviour of scientific phenomena.

KEYWORDS: virtual; real; semantics; ontology; theology; physics; theatre

“When I use a word,” Humpty Dumpty said in rather a scornful tone, “it means just what I want it to mean – neither more nor less”. The question is, said Alice, “whether you can make words mean so many different things”. “The question is”, said Humpty Dumpty, “which is to be master – that’s all”.

Lewis Carroll, *Through the Looking Glass*

### 1. Virtual/Real: Antonymity or Ambiguity?

This essay wants to address a series of issues generated by debate and reading in connection with the adjective (and, as a noun, concept) *virtual* and its usage. The main concern is with the complex semantic relationship with *real* in the fields of philosophy, theology and physics and finally what happens when *virtual* is used to qualify *theatre*. From the first moment that the word *virtual* is recorded in the written usage of the English language it becomes one of the key terms of argumentation in the theological dis-

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course of the early church, closely connected with *ideal* and opposed to *real*. It will collect further antonyms in its journey through philological history, but its antonymical relationship with *real* will reveal itself to be, from the very beginning, more of a cause for ambiguity than a clear-cut opposition. This will be the essay's main line of interest, as the usage of *virtual/real* plays a crucial role in the rhetorical categories of the description and exposition of the science of optics, and as scientific theory progresses exponentially, in the fields of physics and then in the more specialist area of quantum theory. With the advent of computer science, the compound *virtual reality* comes into being, and with this the technology of digitalization. At this point the usage of the term *virtual theatre* will be discussed. The fact this last is also in a way (though not in accepted usage), an example of tautology, is taken as a given, semiotics having theorized and demonstrated in the last century that theatre may be defined as a system of signs and therefore to qualify it as virtual could at first glance seem redundant. Nonetheless, the term has stuck and the various ways in which it is currently used continue to reflect the basic ambiguity of *virtual*.

One of the main points of reference will be the online ongoing 2013 re-edition<sup>1</sup> of the *Oxford English Dictionary (OED)*,<sup>2</sup> the historical dictionary published by Oxford University Press,<sup>3</sup> and I shall be deliberately quoting from it in the body of my text. If we look up *virtual* in the *Oxford English Dictionary* the first detail of the entry, for both the adjective and the noun, is the fact that in the 2013 re-edition it is in Frequency Band 6<sup>4</sup> on the

<sup>1</sup> Beginning with the launch of the first *OED Online* site in 2000, the editors of the dictionary began a major project to create a totally revised third edition of the dictionary (*OED3*), whose possible completion date is 2037.

<sup>2</sup> Although the results of the *OED* are overwhelmingly important it should be borne in mind that other European countries had already produced exhaustive dictionaries of their languages. The first edition of the *Vocabolario degli Accademici della Crusca* was published in 1612, and constituted the first great dictionary of a modern European language. France followed in 1694 with the first edition of *Dictionnaire de l'Académie française* and Spain in 1780 with the *Diccionario de la lengua Española*. The *Deutches Wörterbuch*, begun by the Brothers Grimm in 1838, the first volumes of which were published in 1854, and which was completed in 1961, served as the model upon which the *OED* was based.

<sup>3</sup> The original project of the *OED* began in 1857 and its publishing, in unbound fascicles, continued throughout the nineteenth century. The fascicles were finally republished in ten bound volumes in 1928. It was the brainchild of three members of the Philological Society, Richard Chevenix Trench (1807-1886), Herbert Coleridge (1830-1861, grandson of Samuel Taylor Coleridge) and Frederick Furnivall (1825-1910). The eventual principle editor of the 10-volume first edition, James Murray (1837-1915), died before he could see the publication of his life's work.

<sup>4</sup> At present, the *OED* only indicates the frequency that each word has in modern English (1970-). This is calculated by averaging the frequencies found for each decade

*OED*'s eight-point scale (eight being the most frequently used). Band 6 contains words in current use which occur between ten and 100 times per million words in typical modern English usage, including a wide range of descriptive vocabulary. It takes very little imagination to suppose that by now, in 2020, especially while the various lockdowns of the Covid-19 epidemic are still a harsh reality, the frequency of the documented usage of *virtual* may very well have increased. A great deal of what is going on in daily life, from work, to shopping for food, to chatting with friends, exercising, enjoying art and music and indeed the other and more terrible side of the coin, communicating with the sick, and comforting the dying and the grief-stricken, is either done 'virtually' or with the minimum of human intervention. The documentation of the period is bound to reflect this increase and, as we shall see, the present situation is not unconnected with the theme of this essay in other ways too. The terrible reality of the pandemic has occasioned an exponential increase of social virtuality.

When trying to define terms it is useful to ask the question of what a word is not intended to mean. To return to the consultation of a dictionary (not for the last time) some of the antonyms of *virtual* provided by various online thesauruses include *actual, real, true, definite, genuine, authentic, concrete, tangible*. Without wanting to enter too far into the complex corridors of semantic theory it is clear that an adjective such as *virtual* is going to possess a considerable degree of semantic power.

Merriam-Webster also helps towards a pragmatic interpretation of the antonymy of the pair *virtual/real*. Entry 1.a for *virtual* has: "*being such in essence or effect though not formally recognized or admitted*" (emphasis mine). For sense 1.a of the correlated term *objective* it gives: "expressing or dealing with facts or conditions as perceived without distortion by personal feelings, prejudices or interpretations", and, perhaps more interestingly in the context of this essay, sense 2.a elaborates: "of, relating to, or being an object, phenomenon, or condition in the realm of sensible experience independent of individual thought and perceptible by all observers: having *reality independent of the mind*". As we see here, too, antithesis plays a considerable part in the definition of this slippery pair.

from 1970 to the present day. If a word is more recent than 1970, the frequencies found for each decade from the word's first recorded use are averaged. Frequency information is not given for obsolete words. In order to understand the dynamics of the language system, usage-based linguists study how languages evolve, both in history and language acquisition. One aspect that plays an important role in this approach is frequency of occurrence. As frequency strengthens the representation of linguistic elements in memory, it facilitates the activation and processing of words, categories and constructions, which in turn can have long-lasting effects on the development and organization of the linguistic system.

## 2. *In the Beginning was the Real*

The fact that the principal antonym of virtual in the context in which it is being examined here is indeed the adjective *real*, the discussion of which is the matter of ontology, does not render the problem any easier. Indeed, the matter of virtuality itself may be seen as always having been considered within this area of philosophy. In ancient Greece, the ideas of Pre-Socratic philosophy gradually through time divided into two main streams, that of ‘materialist’ thought which maintained that reality can be determined by human perception and that of what will later be termed Parmenidean thought which rejected the evidence conveyed by the senses and asserted that all sensible experience was mere appearance. But it is with the thought of Plato and Aristotle, with their distinction of the procedures of approximate and exact reasoning and the differentiation between abductive, deductive and inductive inference that the discourse of the philosophy of science is born. Platonic realism, following the theories of Parmenides, long before the English language had come into being, had already, with its theory of forms, or universals, made the distinction between (physical) reality which is perceptible, from the reality which is imperceptible but intelligible. In effect there are three realms of *reality* (or *existence*): the sensible, external world, the internal world of consciousness and a third realm, that of the concept of eternal unchangeable perfect types of which particular objects of moral and responsible sense are imperfect copies. The *idea* of the *ideal* is rendered more ‘real’ than human perception of the apparent *reality* (considered by Plato as “σκιαί” – shadows, and as “εἰδωλα ἐν ὕδασι” – reflections in water, *Rep.* 7.516a-b) which this man is observing. In the analogy of the cave in Book 7 of the *Republic* he shows Socrates illustrating the contrast between the world of sense perception and the world of thought in what can also be seen as a parable of the aspiration of the soul (ψυχή) towards the ideal, by means of the practice of excellence (ἀρετή – virtue) this last translated later into Latin using the word *virtus*, meaning strength or power. The physical world is revealed through the sense of sight, the metaphysical through the abstract concept of vision. Gradually, as the story develops the Greek words – ἀληθές – true, unconcealed; ὄντος – from εἰμι – I am; ὀρθός – straight, right, correct,<sup>5</sup> in this particular context translat-

<sup>5</sup> “As regards the translation, I impenitently reaffirm the principles that I stated in the preface to the first volume – whatever errors of judgement I may commit in their application. Much of the *Republic* can be made easy reading for any literate reader. But some of the subtler and more metaphysical passages can be translated in that way only at the cost of misrepresentation of the meaning. In order to bring out the real sig-



ed into English using variously, *real*, *reality*, *really*, *truly*, seem almost inevitably to slide over into the semantic field of the *ideal*. Indeed, many of the various more complex contemporary meanings of *real* are owed to Plato's thought and the translations, in this case into English, of his philosophical teaching which, it is important to emphasize here, was based on mathematical reasoning. As we shall mention later, eminent twentieth-century theoretical physicists concur that pre-Aristotelian thought constitutes the genesis of their theories, although the later theorizing on the part of Aristotle, which ultimately distinguishes clearly between the two levels of Being, actuality (*reality*) and potentiality (*virtuality*) allows a dynamism between the two concepts which will form the basis of the concept of motion. Elsewhere, in the *Phaedo*, Socrates' problematizing of the whole question of reasoning through antonyms is expounded on his deathbed:

ὡς ἄτοπον, ἔφη, ὧ ἄνδρες, ἔοικέ τι εἶναι τοῦτο ὃ καλοῦσιν οἱ ἄνθρωποι ἡδύ, ὡς θαυμασίως πέφυκε πρὸς τὸ δοκοῦν ἐναντίον εἶναι, τὸ λυπηρόν, τὸ ἅμα μὲν αὐτῷ μὴ ἠέλειν παραγίγνεσθαι τῷ ἄνθρωπῳ, ἐὰν δέ τις διώκῃ τὸ ἕτερον καὶ λαμβάνῃ, σχεδόν τι ἀναγκάζεσθαι αἰεὶ λαμβάνειν καὶ τὸ ἕτερον, ὥσπερ ἐκ μιᾶς κορυφῆς ἡμμένῳ δύο ὄντε. (Plato, *Phaedo*, 60b)

[What a strange thing my friends, that seems to be which men call pleasure! How wonderfully it is related to that which *seems to be its opposite*, pain, in that they will not both come to a man at the same time, and yet if he pursues the one and captures it he is generally obliged to take the other also, as if the two were joined together in one head. (Fowler 1966)]<sup>6</sup> (italics mine)

Later Socrates addresses the question of the soul's immortality in the Argument from Opposites, maintaining that everything that comes to be, comes to be from its opposite although this reasoning has since been a constant source of debate. At *Phaedo* 104b he states:

ὃ τοίνυν, ἔφη, βούλομαι δηλῶσαι, ἄθρει. ἔστιν δὲ τόδε, ὅτι φαίνεται οὐ μόνον ἐκεῖνα τὰ ἐναντία ἀλλήλα οὐ δεχόμενα, ἀλλὰ καὶ ὅσα οὐκ ὄντ' ἀλλήλοις ἐναντία ἔχει αἰεὶ τάναντία, οὐδὲ ταῦτα ἔοικε δεχομένοις ἐκείνην τὴν ιδέαν ἢ ἂν τῇ ἐν αὐτοῖς οὕσῃ ἐναντίαῃ, ἀλλ' ἐπιούσης αὐτῆς ἤτοι [104c] ἀπολλύμενα ἢ ὑπεκχωροῦντα.

nificance of Plato's thought it is sometimes necessary to translate the same phrase in two ways, sometimes to vary a phrase which Plato repeats or repeat a synonym which he prefers to vary. It is often desirable to use two words to suggest the twofold associations of one. To take the simplest example, it is even more misleading to translate *eidōs* 'Form' than it is to translate it 'idea' – 'idea or form' (without a capital letter) is less likely to be misunderstood." (Shorey. 1942, lxxii-iii)

<sup>6</sup> All quotations from Plato's *Phaedo* refer to Fowler 1966.

[Now see what I want to make plain. This is my point, that not only abstract opposites exclude each another, but all things which, although not opposites one to another, always contain opposites; these also, we find, exclude the idea which is opposed to the idea contained in them and when it approaches they either perish or withdraw.]

The ‘unity of opposites’ is a central category of dialectics defining as it does a situation in which the existence or identity of a thing (or situation) depends on the co-existence of at least two conditions which are opposite to each other, yet dependent on each other and presupposing each other, a contention that goes back to the origins of ancient philosophy and originates with the pre-Socratic philosopher Heraclitus.<sup>7</sup>

As we shall shortly see, English medieval theological debates inherit much from Platonic realism, while including and expanding some later Aristotelian development, which was engrafted on to the doctrines of the early Christian church. But from the dialectic between ideal and real, first in Latin, then in English and the other modern European languages as they move away from Latin, the various vernaculars evolve and flourish and the Reformation grows in strength, another pair arises and progresses alongside the first. On the subject of transubstantiation, one of the basic differences between the dogma of Roman Catholicism and Protestantism, the opposition between *virtual* and *real* establishes itself and then almost immediately begins to demonstrate how ambiguity lies at the very root of this pair of apparent antonyms. For the Catholic Church the mystical conversion of bread and wine into Christ’s body and blood was a real conversion, and his words from the Gospels at the Last Supper “this is my body . . . this is my blood” were to be taken literally. The flesh and blood became actually real at the moment of Communion. For Reformation theologians, with Martin Luther at the forefront, the bread and wine were a virtual representation of the material and it was faith that was at the crux of the matter.

### 3. From Philosophy to Theology: The Appearance of *Virtual* in English

To return to the entry for the word under examination: in the *Oxford English Dictionary*, which provides the origin and timeline for the foundation of this exercise, *virtual* as an adjective is divided into two main senses, both of which have numbered and then lettered subdivisions: senses relat-

<sup>7</sup> Across the millennia, and from a linguistic rather than a conceptual perspective, John Lyons one of the most eminent among British scholars of theoretical linguistics during the second half of the twentieth century, warns against the dangers of relying too heavily on the ‘oppositeness’ of antonyms. His semantic analysis of antonymy may be found in Lyons 1968, 460ff.

ing to particular qualities or virtue, referring to the obsolete usage *virtuous*, and senses relating to *essential*, as opposed to physical or actual, existence. It is obviously the latter case that is going to be relevant here and particularly the definition given by its first subdivision, 4.a: “That is such in *essence*, potentiality, or effect, although not in form or *actuality*. In later use also: supposed, *imagined*” (emphasis mine). This is especially pertinent as it shows that the date at which the word first appears is *circa* 1443 in a manuscript text<sup>8</sup> by Bishop Reginald Pecock (c1395-1461) *The Rule of Christian Religion* as part of Proto-Protestant Christian theological discussion, against the Lollards, a movement which followed and developed the teachings of John Wycliffe (c.1320s-1384)<sup>9</sup>, the advocate and one of the translators of the first Bible in English, known as the Wycliffe Bible. Though Pecock, one of the first writers to use the vernacular, was an antagonist of the Lollards, he, like Wycliffe, was declared a heretic but he too managed to avoid a death-sentence. As testified by the quotations following Pecock’s in the *OED* the term variously spelled *vertual* or *wertuall* finally became *virtual* during its use in English medieval and early modern theology, particularly throughout the course of the Roman Catholic and Protestant polemic during the Reformation.

At this point it seems relevant to return to *ideal*, the English word, still, obviously, closely connected to both *virtual* and *real* in the same semantic area of platonically indebted theology. *Ideal* is recorded by the *OED* as coming into usage during roughly the first half of the fourteenth century. Indeed *ideal*, *real*, and *virtu-al* could be seen as a sort of ‘terminological trinity’ in this intellectual sphere. Interestingly, if we turn to the *OED* entry for *ideal*, we find that its sense is that of an idea or archetype; relating to or consisting of ideas in the Platonic or theological sense. Thus, within the ongoing theological discussion contemporaneous with the example from Pecock, we have a quotation with the first case in English usage of *ideal*, not only being given as ‘Platonic or theological’ (not ‘philosophical’), but also as coming from a translation of Boethius’ *De Consolationae Philosophiae*.<sup>10</sup> This work, written in prison while Boethius awaited his own brutal

<sup>8</sup> Middle English lexicographical evidence is particularly difficult to date. It mostly survives in hand-written manuscripts.

<sup>9</sup> Wycliffe was a prominent English scholastic philosopher, theologian, and Roman Catholic dissident priest, predecessor of Protestantism. He narrowly missed being declared a heretic during his life and was finally declared so, and retroactively excommunicated in 1415.

<sup>10</sup> Boethius (c477-524), the Platonist and Christian Roman senator and philosopher of the early 6th century under the Ostrogothic King, Theodoric the Great, was eventually imprisoned and executed in 524, on charges of conspiracy. As the author of numerous handbooks and translator of some of the works of Plato and Aristotle he, to-

execution, is a dialogue of alternating prose and verse between the ailing captive and his 'nurse', Philosophy. Her instruction on the nature of fortune and happiness, good and evil, fate and free will, restore his health and bring him to enlightenment. The ultimate 'consolation' is the conviction of the soul's immortality. It was to prove one of the most popular and influential works of the Middle Ages; indeed, one only needs to think of its influence on many of Dante's works, and his inclusion of the philosopher in Canto X of the *Paradiso* (ll.121-9). In the opinion of the Chaucerian scholar F.N. Robinson:

From Boethius' treatises and translations the early Middle Ages derived much of their knowledge of Greek thought. But his wider fame as a man of letters rests on the *De Consolatione Philosophiae*. The earlier writings were labours of scholarship: this was a work of imagination, produced less under the influence of Aristotle than of Plato and Seneca. The others were expositions of philosophical theses and method; this was applied philosophy – applied in the desperate circumstances of Boethius' fall. Written in prison in the last months of his life it was at once his *apologia* and the final statement of his philosophy. (1957, 319-20)

In England this work underwent numerous translations, notably one attributed to King Alfred (848/9-899) into Old English (*The Old English Boethius*, c880?), Geoffrey Chaucer (1343-1400) into Middle English (the work *Boece*, c1380) and Queen Elizabeth I (1533-1603) into Early Modern English (*The Consolation of Philosophy*, 1593).

The next quotation from the *OED* is taken from a work by Thomas Twyne (1543-1613) the Elizabethan physician and translator of Virgil and Petrarch (the poet's Latin dialogues *De remediis utriusque fortunae*), is a passage from his translation of *Physica christiana* written in 1576 by Lambert Daneau, and is historically speaking, just as significant as the previous one:

1578 T. Twyne tr. L. Daneau *Wonderfull Woorkmanship of World* xi. f. 25  
They make two sortes of worldes, whereof the one is intelligible, Ideall, or as a patterne, which indeede subsisteth, but it is resident about this world: the other is earthly and figuratiue, which God hath created according to the representation and image of that spirituall and ideall worlde.

Daneau, French jurist and Calvinist theologian, in an attempt to devise a 'Christian physics' based primarily on the Bible, develops an argument in

gether with Plotinus (205-270), and Augustine (364-430), became the main intermediary between Classical antiquity and the following centuries. His Neoplatonic idealism, with its emphasis on self-knowledge, action and internal, inalienable truths resonated strongly with medieval readers and thinkers.

his work for a Scriptural basis for physics. This discipline, as we shall see, is the next arena in the development of the term *virtual*.

Meanwhile, following the *OED*, *virtual* in the sense of essence, potentiality, or effect (later also as supposed, imagined) may be seen to continue its 'usage path' through the centuries in the area of philosophy, theology, metaphysics and ethics in the discussion of the reality or not of the eternal life of the soul and of the possible 'manifestations' of divine presence in earthly actuality. Just for interest's sake, as Shields reminds us, "in 1556 Thomas Cranmer was executed in large part because of his affirmation of the virtuality of the Eucharist. Similar charges were levelled against the reformation theologians Luther and Zwingli" (Shields 2003, 1).

#### 4. Science and the Semantic Shift: Virtual Image and Real Image

The next entry for *virtual* in the *OED* takes us from the world of theology to that of physics, although science will take a long time to free itself from the shackles of theological thought. In fact, the conflation of philosophical and theological rhetoric gives the church of the early modern period part of the ammunition necessary to confront and condemn the implementation of the discourse of modern empirical science. At this juncture, with the genesis of this science, the sense of *virtual* splits and the new sense jumps from the abstract to the material world so that a semantic shift (in this case consisting of changes in the referents) occurs in its usage: the definition of *virtual* regarding physics in the *OED* concerns the discovery on the part of scientists studying optics that a virtual image is one where the light forming it appears to diverge from a point beyond the refracting or reflecting surface and the term *virtual focus* designates the point from which such light appears to diverge. By the seventeenth century European culture and thought is, needless to say, progressing by leaps and bounds. The beginnings of modern physics are already clearly to be seen, particularly in the work of the giant-like figures of Galileo Galilei (1564-1642) and Johannes Kepler (1571-1630), although mention must be made at this point of Hasan Ibn al-Haythan, Latinized as Alhazen (c965-c1040), who was born in Basra, spent his life in Cairo, and who is generally referred to as 'the father of modern optics'. Alhazen conducted his research using controlled experimental testing and applied geometry, especially in his investigations into the images resulting from the reflection and refraction of light. Optics, the branch of physics that studies the behaviour and properties of light, is an ancient science, whose first recorded theory (followed by Euclid among others) was in fact, disproved by the same Ibn al-Haythan.

It was the practical experimentation with lenses and the invention of eyeglasses or spectacles in medieval Italy, and later in the Netherlands and

Germany, which led both to the invention of the optical microscope (c1595) and the refracting telescope. The work of Galileo and Kepler in the field of optics, including, among many other things, the Galilean refracting or dioptric telescope (1608), and Kepler's improved version of this (1611), leads to further work in seventeenth-century Europe, including that of Johannes Hevelius (1611-1687) in Poland. It is the work of Kepler, however, which concerns us here as it was he who, in his book, *Ad Vitellionem paralipomena*, in the words of the scholar Alan E. Shapiro ". . . bequeathed two distinct concepts of image, *imago* and *pictura*, which to us are simply two aspects of a single concept of image, a virtual and a real image" (Shapiro 2008, 217). Real images are those where light converges, whereas virtual images are made by rays that do not actually come from where the image seems to be. But let us turn to the *OED* quotations for *virtual* in the above sense:

1692 W. Molyneux *Dioptrica Nova* ix. 56 Draw *g k* directly to cross the Axis in *e*. I call the Point *e* the Virtual Focus, or Point of Divergence.

1692 W. Molyneux *Dioptrica Nova* 96 What is here Demonstrated concerning the Real Image of a Convex Glass may be accommodated to the Virtual Image of a Concave.

The first two quotations, from Molyneux, are startling in the first place because he, a scientist, is writing in English. The language of modern science from its beginnings in Renaissance and Enlightenment Europe was Latin (Descartes' *Discours de la méthode*, in 1637, being one of the few exceptions), and this practice will continue for many scientists in England and on the Continent right into the nineteenth century. Molyneux' main title, *Dioptrica Nova*, is indeed in this language, as if to give his work credibility and status, but the subtitle, *A treatise of dioptricks in two parts, wherein the various effects and appearances of spherick glasses, both convex and concave, single and combined, in telescopes and microscopes, together with their usefulness in many concerns of humane life, are explained*, is in English and the work itself continues in this language.

It seems more than just coincidental that, here too, *virtual* is a crucial term. In the field of optics, a discipline which constitutes one of the principal progenitors of modern physics, this lexical item, just as it was at the beginning of theological discussion in English, is involved in a central issue together with its antagonist/companion *real*. As there were no translations of Kepler's works into English until the twentieth century, Molyneux is using the pair *virtual/real* in English in this context for the first time. Molyneux, like Kepler before him, is still perplexed by the fact that vision is upright if the image on the eye is inverted. Wade and Gregory observe: "Kepler (1604) would not be drawn on such speculation, considering that

the question was beyond the scope of optics: 'I leave it to the natural philosophers to discuss the way in which this image or picture is put together by the spiritual principles of vision' . . . Molyneux was similarly constrained as the question was taken to be one addressed to the soul rather than to the eye" (2006, 1579). Both Molyneux and Kepler, are still entangled in theological and metaphysical issues, as can be seen from the following passage from *Dioptrica Nova*:

How then comes it to pass that the Eye sees the Object *Erect*? But this Query seems to encroach too nigh the enquiry into the manner of the Visive Faculties *Perception*; For 'tis not properly the Eye that *sees*, it is only the Organ or Instrument, 'tis the *Soul* that *sees* by means of the Eye. To enquire then, how it comes to pass, that the Soul perceived the Object *Erect* by means of an *Inverted* Image, is to enquire into the Souls Faculties; which is not the proper subject of this Discourse. (Molyneux 1692, 105-6, original italics, qtd in Wade and Gregory 2006, 1581)

As the science of optics progresses through the next three centuries optical science will reach heights of complexity unimagined by its first perpetrators, while the history of the usage of *virtual/real* maintains its place in the discussion of the development of the behaviour of light with lenses and reflections. The fact that only a real image may be projected on to a screen itself goes far in 'proving' its 'reality' to the layman. But the fact that in reflections real images are always inverted and virtual images are always erect/upright somehow, once again, confuses the issue. If we pick up a spoon and look at our reflection on both sides, the concave surface or bowl of the spoon will show us our real image upside-down whereas the convex surface will reflect a virtual image of how we actually are, upright.

## 5. Virtual Reality and Computer Science: The Usage of *Virtual* in Postmodern Philosophy and Physics

At this point in the semantic and ontological relationship between *virtual* and *real* the boundary between the two terms, which has always seemed fragile, is to all intents and purposes rendered null. In this 'decentred ontology' the term *hyperreality* comes into being, the boundary between reality and virtuality is blurred. In the words of the Hungarian scholar László Ropolyi:

In this world, the images and signs, the simulations and simulacra have no referents, they can only be considered as real beings. In this situation (which is approaching the last stage of a cultural crisis), the image masks the absence of reality and substitutes it. It makes no sense to speak about external and internal worlds, because the construction itself is the definite,

central part of the intellectual activity. The significance and the role of the place, the body, the distinguishable material and intellectual entities collapse, they become substituted by their interrelations and networks. (2016, 45)

Gilles Deleuze (1925-1995), one of the most prominent of postmodern philosophers had much to say on the concept of the virtual and his work explicitly brought the concept of virtuality into twentieth-century philosophy. In the volume *Bergsonism* Deleuze derives, in turn, his idea of the virtual from *Matter and Memory* (1988) where Bergson's reasoning upon the 'virtual image' is suggested to him by the physical theory of the virtual image in optics (although his insistence on the inadequacy of mathematization is notorious):

. . . the virtual image evolves toward the virtual sensation and the virtual sensation toward real movement: this movement, in realizing itself, realizes both the sensation of which it might have been the natural continuation and the image. (Bergson 1988, 131)

Deleuze's concept of 'the virtual' is also based upon what Proust maintains in *Time Regained*, "real without being actual, ideal without being abstract" (Deleuze and Guattari, 1994, 156). As Shields points out, Deleuze, elaborating upon Proust and Bergson and their thought upon memory and time, complicates and enriches the argumentation and definition of what virtual signifies. For Bergson, "the virtual is used only as a descriptive term, an adjective which helps summarize a much longer (and now outdated in terms of both the language of realization . . . and in terms of neurophysiology) discussion of stimulation, perception and memory" (Shields 2003, 26).

In Deleuze's thought, especially in the earlier works, the virtual is not only contrasted with the actual but also with the abstract, the probable and the possible. Plotnitsky maintains that here, in *Difference and Repetition*, for example, or *The Logic of Sense*, the virtual is "something that defines the space of what is possible and as such shapes the possible forms of the actual" (2006, 50) although in a context such as this – the usage of the English word *virtual* – the finer shadings of the words in question, particularly in the case of *actuel/actual* are slippery, given that they are translations from the French (*actual* in English does not express the same signification of the present as does the French *actuel* – and indeed the Italian *attuale*). In fact, Shields has to have recourse to qualifiers to his nouns and the use of italics to make his point clear in his summary of Deleuze's exegesis. He says:

The best contrast to the virtual is the concretely present (which may also be called the real actual). *The virtual is distinct not only from the concrete, but also from the abstract.* (2003, 29)



In *What is Philosophy?*, Deleuze and Guattari confront some of the endless philosophical questions raised in the realm of science by quantum field theory and chaos theory by approaching them through Deleuze's concept of the virtual. When discussing their idea of the relationship between philosophy, science and art with chaos they comment:

Chaos is defined not so much by its disorder as by the infinite speed with which every form taking shape in it vanishes. It is a void that is not a nothingness but a *virtual*, containing all possible particles and drawing out all possible forms, which spring up only to disappear immediately, without consistency or reference, without consequence. Chaos is an infinite speed of birth and disappearance. (1994, 118)

This text is also analysed in Elizabeth Grosz's useful essay "Deleuze, Theory and Space" which focusses, among other fundamental questions, on Deleuze's fascination with Bergson's idea of the virtual developed at the centre of his (Bergson's) understanding of duration as "a clash, a productive encounter between two kinds of forces, one rooted in chaos . . . as the force of events . . . and the other modality functioning around the production of a selective order and organization . . . (2003, 82-3). For Deleuze science must "search the infinite chaos of the virtual for new forms to actualize" (1994, 123) and art must "tear open the firmament itself, to let in a bit of free and windy chaos and to frame in a sudden light a vision that appears through the rent" (2003) and in doing so tame the virtual, defeat chaos. What, however, seems most germane to my argument in this essay is Grosz's emphasis upon the slippage of clear definition between the oppositional terms (or antonyms) adopted by Deleuze as he interprets and develops Bergson's thought:

This series of oppositional terms (smooth/striated, chaos/order, fluid/solid, perception/intelligence, duration/space, *virtual/actual* – *my italics*) is not really a distinction between chaos . . . and order . . . for each of Deleuze's and Bergson's pairs is a *mixture* of both . . . (2003, 83).

Here again, then virtual and real although defined by their users as opposites seem inevitably to meet in the middle and coalesce.

To return to the *OED*, the senses concerning the usage of *virtual* in the fields of mechanics, and nuclear physics only need mentioning, in this essay, as the demonstration of disciplines in which the meaning of this term seems to possess a strong life of its own, often with little need to be associated with *real* (though of course it is still there in the background) and even less with *ideal*. The quotations from the literature regarding these fields in the *OED* begin in the nineteenth century but are naturally mainly from the twentieth and twenty-first. But when we get to particle physics what ap-

appears thought-provoking is that the links *virtual* has with philosophy, as we have seen in the case of Deleuze, have never been interrupted. Particles in the field of physics are defined as being unable to be directly detected, occurring over a very short interval of time and space and having (as a result of the uncertainty principle) a correspondingly indefinite energy and momentum which are not necessarily conserved over the time involved. Particularly in the case of quantum physics the ontological status of virtual particles and their behaviour meant that eminent founders of quantum mechanics and physics of the first half of the twentieth century such as Erwin Schrödinger (1887-1961), Wolfgang Pauli (1900-1958) and Werner Heisenberg (1901-1976) maintained that as a starting point in their theoretical exegesis of this matter, it was necessary to include the metaphysical theories of Greek philosophers such as Heraclitus, Parmenides, and Plato (Mouján, 2020). The pre-Aristotelian ancient Greek philosophers accompany *virtual* into the modern world of *strange* physics, the world of the subatomic particles defined as leptons, bosons and quarks, which last particle numbers among its qualities (or 'flavours') *up*, *down*, *top*, *bottom*, *charm* and *strange*.

At this juncture we have arrived at the use of *virtual* in the world of computer science where the frequency of its usage is expanding exponentially. In computing it is used for the first time in 1957 to qualify *memory* when this becomes a resource which is not physically present as such but made by software to appear to be so from the point of view of a program or user. This is particularly significant as *virtual* is now made to seem real not by the argumentation of philosophy or theology or the actual properties of natural phenomena but through the physical intervention of science. As computer science develops, usages of *virtual* deriving from this first appearance gradually make their appearance in the quotations: *virtual hardware* (1972), *virtual disk* (1991), *virtual drive* (2009). It is however from the next definition onwards that we begin to see the acceptance of *virtual* that includes areas of activity essential to *virtual theatre*, the topic from which we started: the computerized or digitized simulation of something especially that simulated in *virtual reality* and also when established or conducted using computer technology rather than more traditional means. The examples of usage for this sense, including 'virtual office', 'virtual town halls', 'virtual gigs', 'virtual living room', have, coincidentally, become all too familiar in the past year, and are, ironically enough, extremely apt if one compares them to the comments and advice of the 'Lifestyle' section during most of 2020 of the online edition of the British newspaper *The Guardian*, although the final one from 2012, virtual wards, would unfortunately be useless in our Covid-ridden world. *Virtual*, indeed, in this sense has become a term familiar in everyday usage.

But here we leave the entry for *virtual* tout court, and are guided by a

link in the *OED* to the independent entry for *virtual reality*:

A computer-generated simulation of a lifelike environment that can be interacted with in a seemingly real or physical way by a person, esp. by means of responsive hardware such as a visor with screen or gloves with sensors; such environments or the associated technology as a medium of activity or field of study; cyberspace. Abbreviated *VR*.

The strength of the term *virtual* begins to astonish. Although in constant conflict with *real* (and what word could be stronger?) it maintains its hold and manages to invade the semantic field of *real* at every opportunity. With this entry it almost seems as if *real* gives up the unequal struggle and the concepts of *virtual* and *real* meld into one another, in a noun phrase where, furthermore, it is *virtual* that possesses the power to modify the sense of *reality*. The first instance quoted by the *OED* is, not surprisingly from IBM's *Data Processing Division*, and dates from a Programming Announcement in 1979: "A base to develop an even more powerful operating system . . . designated 'Virtual Reality' . . . to enable the user to migrate to totally unreal universes". By 1993 the usage of the term virtual reality, quoted from David Scheff's well-known volume of the history of the gaming industry, *Game Over: How Nintendo Zapped an American Industry, Captured Your Dollars and Enslaved Your Children*, also refers to the virtual world of computer games which will become more and more highly sophisticated as the twenty-first century progresses. And, in addition, this grammatical structure becomes an adjectival compound whose combined meaning can modify other nouns at its pleasure. The examples of compound usage in the *OED* quotations range from "virtual reality suits" (1990) to "a virtual reality model of the city" (1992), from "virtual-reality twentieth-century fashion, via the Internet and satellite phones" (1999) to "scanning of the mummy . . . combining CT technology and virtual-reality software" (2001), from "virtual-reality experiments" (2008) to "virtual reality glasses" (2012).

As the new millennium has proceeded philosophers have been expending much thought on the status of *virtual reality*. Brian Whitworth logically develops the extreme case of this thinking while positing (rather as Plato did, though not of course from the same idealist premises) a *prima facie* case that the physical world itself is a virtual reality:

One of the mysteries of our world is how every photon of light, every electron and quark, and indeed every point of space itself, seems to just 'know' what to do at each moment. The mystery is that these tiniest parts of the universe have no mechanisms or structures by which to make such decisions. Yet if the world is a virtual reality, this problem disappears.<sup>11</sup> (2007, 9)

<sup>11</sup> The essay referred to explains in detail this contention, together with other rele-

David Chalmers also confronts this possibility from the opposite perspective in his 2017 essay on what he terms ‘virtual digitalism’. Here, instead of starting with the contention that the real world is virtual, he wants to categorize the virtual world as a kind of digital reality:

What is the underlying philosophical view that leads to this virtual realism? Some philosophers will be led there by idealism, saying roughly that reality is in the mind, so that if we have rich enough perceptions as of a world around us, that world is real. If so, then if a virtual object looks and sounds and feels real, then it is automatically real. I am not an idealist, however: I think there is a great deal of non-mental reality outside the mind . . . Instead, my philosophical view is a sort of structuralism. Physical reality can be characterized by its causal structure: the patterns of interaction between physical objects, and their effects on our experience. Exactly the same goes for virtual reality. Digital objects in general are characterized by their patterns of interaction, which is ultimately a matter of causal structure. Furthermore, the same patterns of causal structure that are present in physical reality can be present in virtual reality . . . Non-virtual reality and virtual reality are just two different implementations of closely related structures. There may be some differences, but not enough to make one real and valuable while the other is not . . . I think that at least the first two tenets of virtual realism can be accepted by people with little sympathy for structuralism or idealism. (2017, 34)

Naturally it is impossible within the confines of the article to do justice to either of the essays just quoted. But it is interesting to me that these two scholars approach the same basic question and arrive at (more or less) the same answer from opposite extremes. The first (Whitworth) wants show that it is possible in theory to explain, justify and define the real world as virtual. The second (Chalmers) wants to use the tenets of philosophy to identify the causal structure of the digital (virtual) world as being the same as that of the real world. Both seem to be saying, using different premises and terminology, that the two worlds are theoretically definable in the same way. The results of their arguments (only when summarized however) almost become a sort of Moebius strip.

The science of virtual reality from ‘the operating system’ of a computer which leading to ‘totally unreal universes’ as different from the ‘real’ ‘parallel universes’ of quantum physics,<sup>12</sup> becomes, by 1989, a ‘technology’ which ‘synthesizes’ ‘shared reality’ and then, by the beginning of the new millennium a pair of goggles (a form of eyeglasses or spectacles) which in-

vant information for which there is no space here.

<sup>12</sup> Another ‘strange’ theory generated by quantum physics is that which proposes that “each quantum choice divides the universe into parallel universes, so everything that can happen does in fact happen somewhere” (Whitworth 2007, 2).

stead of improving a person's sight or vision of the real world enables them to 'experience' a virtual one with its own space: cyberspace or 'Cyberia'. The name was coined more than thirty years ago for the notional environment within which electronic communication occurs (usually online), viewed as a sort of global village or sphere of human interaction. When one compares the journey of the words *real* and *virtual* (in effect, the history of ontology) through the millennia, the semantic shifting of the same terms to describe widely diverse physical and metaphysical experience is extraordinary, as is the constant impression they give of being opposite poles which instead of antonymically repelling one another, are continually attracted by their very diversity. The term *virtual reality* in effect seems to resolve the underlying millenary ambiguity in a conflation of antonymity and tautology.

## 6. Virtual Theatre in the Time of Covid-19: Real or Virtual, that is the Question

At this point in the overview we temporarily lose contact with the OED which has not yet supplied a compound sense or quotations for the expression virtual theatre, although it seems likely that this will be inevitable. As has been already stated all theatre, in the semiotic sense, is virtual. Ropolyi, in the article cited above, maintains:

All beings produced by representational technologies are necessarily virtual. The reason can be found in the very nature of representation. There is no representation without using signs. In other words: there is no representation without two kinds of beings, or two contexts for the beings. The sign has a specific, double nature: the sign is an actual being, but at the same time, potentially something else. We can identify something as a sign if and only if these two faculties of its nature (actually something and potentially something else) are simultaneously present. (2016, 51)

Recently, however, other usages have joined this fundamental definition. The usage of term *virtual* to qualify *theatre* appears to have undergone a rapid coagulation in the very recent past when it is deployed in the sense of 'online'. Pre-Covid theatre had often been simply filmed and/or televised to be enjoyed without any intermediary factors between screen and fruition: recently one example of a different take on the exploitation of an association between stage and screen was the *faux naïf* effect of Kenneth Branagh's project *Branagh's Theatre Live*, with the shooting of actual stage productions where apparently no attempt is made to 'interfere' technologically or to adapt the filming process. These productions were first intended for screening at cinemas, but are now streamed online. At the other ex-

treme, so to speak, online theatre can be produced, often as a didactic tool, or even as a game, so that the receiver may intervene digitally with the production. However, it is clear from simply googling the phrase that the fact that the Covid pandemic has practically eliminated public entertainment means that the prevalent usage of *virtual theatre* has adapted itself to circumstances, given that normal social gatherings have been suspended. To the majority of the public, it simply signifies the online transmission of performance, sometimes rendered more complex through the use of zoom to include actors who are socially distanced from one another. This usage evinces the huge loss of the whole theatrical experience: one of people coming together in a shared space to receive a message which their communal presence in some way modifies.

And, indeed, what to say of the expression ‘virtual audience’? Vinson Cunningham, in the online edition of the *New Yorker*, in his article of 5 October 2020 “Adapting to the Age of Virtual Theatre?” had this to say on being a member of an online audience:

A lot of work goes into seeing a show at home. For one thing, it’s impossible to settle on a seat. I’ve watched plays while sitting at the desk where I write, or on the floor next to the desk, or on the couch across the room, or at the kitchen table, or, least proudly, lying in my bed, under the covers. I’m never even close to dressed up; I’m there to see but not be seen . . . It’s easy to forget that, in the theatre, each ticket buyer plays a role. The quality of our attention – silent or ecstatic, galled or bored – is a kind of freestanding, always improvising character, and makes each in-person performance unrepeatable. Call it the congregational art, and remember how you once practiced it: it has something to do with location, and feeling, and your invisible relationship with individual performers and the whole panoply of action on the stage.

The audience in this case can of course can switch off video and audio and go about their daily business, leaving the laptop as an artificial presence to testify that they really meant to come, and at the same time possibly virtually feed the real audience statistics. But then, in this case we should perhaps discuss the term ‘virtual absence’. Is this an oxymoron? Or a philosophical question? A neologism for a new situation? In a way simply as a situation it is not completely new, however, as the bored or those who simply came for the social occasion have always had the alternative of sleep.

Another acceptance of the term *virtual* as a compound expression with *theatre* is in the sense of *digitization*. The ramifications of the representation of the real, of mimesis, have always been explored in the world of theatre. At times these explorations have led to highly ambitious and complex realism, at others, the realization of a desire for simplicity and essentialism. These objectives have been pursued in the areas of costume design and es-

pecially of scenery, special effects and props. With the onset, and by now extreme sophistication, of digital technology it is still here that the principal concentration of effort lies. Not necessarily of course to produce the effect of reality, but often to aid the expression of symbolism within the text or to intensify characterization. In point of fact the increased complexity of digitization usually heightens and enhances the virtuality of the performance.

In conclusion, however, it may be with the ever more multifaceted creation of avactors or synthespians who/which will join human actors on stage that the most innovative consequences are going to be obtained. Research is going on, as witnessed on Youtube, into the production of a life-size, life-like avatar of Hamlet. To see this figure on stage declaiming “To be or not to be” or “Oh that this too too solid/sullied flesh would melt” or perhaps interacting with a human actor as the Player in the metatheatrical universe of Act 3 Scene 2, is, or could be made to be (or has already been made to be?) by director and/or dramaturge and technicians, part of the philosophical discourse concerning the status of the quasi tautology *virtual reality*. Perhaps with the stagecraft of the twenty-first century an important aspect of the usage and interpretation of the ‘antonymical’ pair *virtual/real* will be seen, in this way, to continue in its ambiguous development. From the very beginning the flight of the human brain from the real (in reality, from chance and death) has been steady and unceasing and religion, philosophy, science and art – in this case the theatre – have attempted to aid and justify this flight. So much so that it seems that science has managed to do what religion and philosophy – and art – and, indeed, theatre from its very beginnings – have been attempting for millennia and in facilitating their task render the virtual, during the human lifespan at least, as strong or stronger than the real. This struggle, which theatre at its best often mirrors, explains and renders more enduring, is reflected in the usage of the little word *virtual* and its conflict with *real* through the centuries. As T.S. Eliot in “Burnt Norton” (1.42-3) wrote, “human kind / Cannot bear very much reality”.

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