Exploring the job/game boundary: the Klein bottle game

Dr Kevin Scally
Cork University Business School
University College Cork
Cork, Ireland.
E: k.scally@tcd.ie

Prof. Donncha Kavanagh
UCD School of Business
University College Dublin
Dublin, Ireland
E: donncha.kavanagh@ucd.ie

Abstract

Games are often characterised as closed or *autotelic,* a term coined by Csikszentmihalyi (1990) to describe a state of 'flow' or 'optimal experience' for the player. But a player may be any problem solver where the solution of the problem is the end, if not the obsession. In this paper we interrogate a common perception of a game as dichotomous with job. The image of a boundary between game and job is an artificial construct, owing much to history and ideology. To query the validity of the boundary construct we propose the analogy of an all embracing game, the Klein bottle game, that makes use of the mathematical description of a boundaryless topological space.

> ‘It always does seem to me that I am doing more work than I should do. It is not that I object to the work, mind you; I like work: it fascinates me. I can sit and look at it for hours. I love to keep it by me: the idea of getting rid of it nearly breaks my heart.’ (Jerome K. Jerome, 1889, from *Three Men in a Boat*)

The necessity for games

Play and games precede history and society. Animals play social games; humans and dogs play social games with an integrated object (like a ball), as do dolphins (Pika & Zuberbühler, 2008). One of the earliest board games for which the rules are known—the Game of Twenty Squares—was widely played 5,000 years ago (de Voogt, Dunn-Vaturi, & Eerkens, 2013), and the seeds and evolution of such a sophisticated game design must have been initiated many centuries before that. Gobet, Retschitzki & de Voogt (2004) propose a 1694 work by oriental linguist Thomas Hyde as the earliest systematic descriptive study of game history. They go on to point to the fruitful application of game studies in fields like psychology, mathematics, economics and philosophy. In the social sciences the ludology literature can trace its roots to studies by Culin (1889; 1895; 1907) and the seminal works of Huizinga (1955) and Caillois (1961). Huizinga argued that play is elementary to the human condition, and that war, religion, sports and the arts are all forms of play. ‘Play’, he asserted, ‘cannot be denied. You can deny, if you like, nearly all abstractions: justice, beauty, truth, goodness, mind, God. You can deny seriousness, but not play’ (1955, p. 3).

Before Huizinga the literature on play and games was tiny, but has grown rapidly. Journals since 2000 include: *Game Studies* (2001), *Gaming Research & Review Journal* (2002), *Games & Culture* (2006), and *Eludamos: Journal for Computer Game Culture* (2007). The surge of books on games is also recent. MIT Press’s Game Studies sub-catalogue now contains 75 books, only one of which predates 2000, and includes works that address the interaction of games and art (Sharp, 2015), games and education (Mayer, 2014), games and economics (Lehdonvirta & Castronova, 2014), and games as ‘a productive, expressive way of being’

(Sicart, 2014). Play and games embrace a range of diverse phenomena: an infant plays with a toy, a woman plays a musical instrument, an audience watches a play, a corporation's stock goes into play, playing is a professional sportsman's work. 'Game' is firmly embedded in the broader concept of play, and itself encompasses a wide variety of pursuits: children's games, thousands of different card games, board games (84,000 are listed on the website boardgamegeek.com), a massive video game industry and a host of field games and sports from archery to weightlifting.

The necessity of work

As the quote from Jerome indicates, humour operates on shared experience and shared emotions, and few of us work merely because we love to do work. It is made clear to us from infancy that work provides the means to feed ourselves and any children or other dependants we may acquire. A Gallup global survey from 2012 revealed that a mere 13 per cent of us are 'engaged' by our work (Crabtree, 2014). A more recent UK survey discovered that 37% of British workers felt their job did not make 'a meaningful contribution to the world' (YouGov, 2017). We work out of necessity; and some of us are lucky to enjoy the work, or feel that it is useful.

In the 'hunter gatherer' phase of pre-history, work was directed toward pure survival, migrating with herds of animals or finding edible plants. The invention of farming, in the Fertile Crescent of Mesopotamia, produced the first settled communities and made time available for leisure, play, experiment and further invention—including the invention and refinement of leisure activities like board games.

Maslow's hierarchy of needs is commonly presented as a pyramid with our most basic needs as the foundation. Until our basic needs are satisfied, at least to some degree, it is difficult to aspire to more elevated ones. The grand idea of self actualisation at the pyramid's apex is considered inaccessible to people whose next meal or rent instalment is in doubt. The restaurants of Los Angeles and New York are staffed by actors hoping for their big break in Hollywood or Broadway. Suits (1978, p. 101) gives the example of a character with a passion for theatre whose daily labours constitute the 'undesirable but necessary conditions for his being able to satisfy that passion'. For Moore (2016) we exist on a hierarchy of social contracts for work according

to ‘the degree of compulsion and persuasion’ with ‘chattel slavery in its severe forms in mine and field…at the bottom of the scale’. As a species we are rather new to the idea of individual freedom, having spent the majority of our history (as Rousseau observed) in some form of servitude, working under compulsion, or in chains.

Constructing the boundary between work and play

We have often been compelled to work. In feudal times this happened through the application of laws obliging the poor to seek protection, in return for service, in the fields of a particular lord. The word ‘landlord’ is a legacy of that period. In our own times we rely on moral pressure, society’s disapproval of the idler and the supposed nobility of the most menial employment. Even a socialist politician is likely to refer to the ‘dignity of work’ as their constituents enter the factory gate for an eight hour shift as a quasi-machine. Control of the workforce has a long history. The economic shock following the Black Death and the massive European shortage of labour allowed the serfs to achieve more favourable conditions. This ‘menace...elicited a noisy response from those who were in a position to influence legislation’ and resulted in an attempt in Britain to cap wages and enforce terms through the Statute of Labourers of 1351 (Rubin, 1994) and in similar measures across Europe, including sumptuary laws, to calm ruling class anxiety about the erosion of employer power and the employer-serf distinction (Cohn, 2007).

In the pre-industrial rural communities, work and leisure seem to have naturally intermingled and the boundary between them was fluid: ‘the rhythm of work had been largely self-imposed and often leisurely...The stricter work discipline of capitalist production…severely curtailed such liberalities' (Bailey, 2007, pp. 11–12). In the growing towns and cities the rhythm of factory work demanded ‘discipline, punctuality, regularity, and routine’ (Thompson, 1981, p. 195). Likewise, in the craft guilds, the apprentices needed to be controlled and kept to their task. The industrial revolution imposed a hierarchy of values and utility to separate work from leisure, linking both to a social, moral and political orthodoxy. The Elizabethan and Jacobean Puritans strongly objected to play (in every sense, including its theatrical manifestation), identifying it with frivolity and licentiousness (Morgan, 1966; Rice, 1997). The Long Parliament even managed to close the London theatres entirely in 1640. Reflecting Elizabethan England in 1599 as much as Imperial Rome, Shakespeare’s *Julius*

Caesar opens with an exchange between two Tribunes and some celebrating tradesmen. It is a 'labouring day' yet the tradesmen have appeared in public without their tools and work clothes ('Is this a holiday?…Where is thy leather apron and thy rule?'). For the Tribunes the very idea of a holiday 'blurs distinctions between the "industrious" and the "idle", just as their counterparts the London Aldermen complained that the theatres lured "the prentices and servants of the City from their works"' (Wilson, 1987, p. 32).

As the 19th century dawned 'the social order in Britain was subjected to immense strains by the processes of urbanization and industrialization' (Thompson, 1981, p. 189). The new kind of industrial work, rigidly structured as it was, reinforces the boundary between work and leisure, which then becomes as equally structured a concept in the form of 'rational recreation' (Bailey, 2007). This era sees the rapid growth of the seaside towns, along with the railway system to transport the masses to their leisure break. 'The seaside appealed to the whole spectrum of popular attitudes to leisure, from the narrow dedication to the pursuit of physical, intellectual and moral health and improvement, to the more diffused desire to "have a spree" away from the depressing constraints of the working environment' (Walton, 1981, p. 249). Baker refers to the 'loss of traditional recreations at the hands of reformers and urban necessity' (Baker, 1979, p. 76).

The occupational name 'Baker' reminds us of the extent to which our job became our identity and our name. According to Wikipedia, 'Smith' remains the most common surname in the united Kingdom, Australia and the United States. This is just one occupational surname in a long list that includes common British names like Cooper, Potter, Mason, Tailor, Weaver, Thatcher, Miller, Cook, Shepherd and Gardener among many others. There are equivalents in many countries and in many languages.

Of course we resist the indignity of being mere serfs, of having our noses pushed to the grindstone, and we may prefer rather than to admit 'we have to do this' to tell ourselves 'we ought to do this'. As Moore (2016, p. 36) observes: 'necessity has been internalised to become part of the moral personality in most individuals. One of the most powerful sources of moral outrage is to see someone else getting away with breaking a moral rule one has undergone great pains to make a part of one's own character.' The same irritation grips the motorist who, while carefully observing the regulations themselves, sees someone racing past them at a speed well

in excess of the limit, or the single motorist parking in the 'family' space in the mall, without consequence. This is a bit like s*chadenfreude* in reverse. Along with being necessary for our sustenance, work has acquired a moral or religious imperative. It must then be either a paradox or a deep aspiration that we seem to reserve a special place in our admiration, and a special term, 'playboy', for those who accumulate (or whose ancestors accumulated) enough wealth to enable them to avoid work altogether.

The player/idler is moved to the margins of 'serious' society (either the wealthy or the poor end) and the morality of the useful job is promoted, in favour of the interests of the masters and employers. In this concern for the preservation of hierarchy and control, religious zeal is rarely far away, both before and after Weber (2002) promotes his idea of the Protestant work ethic as the foundation for Western (industrial) capitalism.

Games and jobs

Work is never finished. We finish a job—usually defined as a 'piece of work'— and when we complete it we may move on to another. In a similar way we can argue that play need never be finished, as game may be followed by game. It is important to appreciate that 'job' is related to 'work' in the way that 'game' is related to 'play'. We may work in 'construction' all our lives, but tackle many jobs like building a house or bridge. We may 'play' at kicking the ball around the field all day, but as soon as rules develop like 'you may pick up the ball and cross that line with it to receive 5 points' or even 'last back to the house makes the tea' we are designing games with terminating conditions, be they ever so simple.

A terminating condition, or goal, is a characteristic common to both job and game (but not work or play). We may identify, or at least are supposed to be able to identify, a point when either is completed. Wittgenstein's notion of the 'language game' illustrated a difficulty in finding a simple definition for 'game' since, he argued, you can know what 'game' means only through comparing multiple instances of its use and seeing the differences between the almost infinite activities that we call a game. But Wittgenstein might well have had the same objection if his example word had been 'job'. Such is language.

For a 'game' McGonigal (2011) offers 'four defining traits: a goal, rules, a feedback system, and voluntary participation'. Since clearly those four traits are present in both a job and

a game we must look for something else to distinguish them. Suits (1978) defines a game as a voluntary attempt to overcome unnecessary obstacles. He illustrates the idea by noting that, in the game of golf, the objective of getting a small ball into a small hole a few hundred yards away may be accomplished more efficiently than by striking the ball with a selection of clubs, but once we abandon the rules of golf the game of golf ceases to exist. In contrast a job may have rules or methods to be followed, but we are ultimately free to select the most efficient means to achieve the goal; the terminating condition of the job is independent of any methods used to achieve it.

An immediate response to Suits definition is to point to other activities, besides games, whose character depends on a constraint in the choice of method. The traditional form of the haiku depends on its being composed of either 17 or 11 *on* or syllables— along with other properties held as traditional and essential. English students are instructed in the various forms of metre like iambic pentameter and the sonnet form. Art students are introduced early to the deliberate use of a restricted colour palette by many artists, and to voluntary limitations of technique like Seurat's decision to compose a painting from small dots. Greek dramatists constructed their narrative while observing the classical unities of action, time and place. Perhaps, as McGonigal suggests 'by removing or limiting the obvious ways of getting to the goal, the rules push players to explore previously uncharted possibility spaces. They unleash creativity and foster strategic thinking'.

A serious purpose

Smart (1957, p. 233) reflects a view commonly expressed and widely held, that a game is 'an unessential activity, lacking a serious purpose'. We may infer from this view that a job, in contrast, ought to be both essential and have a serious purpose.

Aristotle proposed that every practical thing we do ultimately aims toward a universal good, toward which all other (intermediate) goods are purposed (Aristotle, 1996). Thus, building a house, or the act of chopping firewood, aim toward the good of our family, and each person doing good for their family leads, beyond them, to the general good. Like his contemporaries, Aristotle's vision of the general good was limited to a narrow subset of the citizens of Athens. Russell is sceptical of the value of Aristotle's vision. For him a neatly

ordered society of ‘well-behaved citizens’ is a system designed to repress ‘youth, spirit and creativity’ and suit the dull ‘respectable middle-aged’. For ‘a man with any depth of feeling’ Russell suggests ‘it is likely to be repulsive’ (2004, p. 168). Our view about what is useful for society is often coloured by our perception of what is good for ourselves. The question to be asked may not be ‘what purpose is being served?’ but ‘whose purpose is being served?’.

It is nevertheless reasonable to assume that an essential job with a serious purpose is one that, if the person doing it stopped doing it, we would notice. Somebody else would have to step in since, by definition, the essential job needs doing. The jobs that would make the least impact by their absence, or whose absence might even be a benefit to society, we could categorise as inessential or pointless jobs. In this category (though he uses the term ‘BS jobs’) Graeber (2015) lists such jobs such as ‘strategic vision coordinators, human resources consultants, legal analysts, and the like’. Douglas Adams's (1995) tongue in cheek list of the 'useless third' of the population of Golgafrincham includes hairdressers, PR executives, opinion pollsters, telephone sanitizers, insurance salesmen, personnel officers and (colleagues be warned) management consultants. We might ourselves include jobs involving the excessive pampering of pets or, indeed, excessive pampering of their owners. A proportion of non-frontline jobs and sinecures in government agencies and quangos must lie under suspicion, while the non religious scholar will be tempted to include many jobs in the administration of churches and faith cults. We can all compile our own lists, with greater or lesser justification.

Whether or not we agree on seriousness of purpose, we cannot escape considering, like Frey & Osborne (2017), the question of which jobs are likely to be replaced or rendered pointless (at least for humans) by automation technologies. We have already experienced a world where farming has shrunk from 75 per cent of our labour requirement to under 5 per cent in 200 years. The 19th century ‘armies of maids’ that ‘staggered up the stairs with hot water for the nursery tubs and coals for every room’ began to be disappear due to a combination of alternative office jobs, labour saving devices, central heating and smaller families (Trevelyan, 1944). It is obvious that unskilled manual jobs have already been affected by robotics, but even skilled expert ‘knowledge’ work may be replaced by a learning neural network (Esteva et al., 2017). Suits imagines a Utopia where every one of our ‘useful’ activities has been taken over by machines, so that everything the inhabitants do loses its connection to the ultimate purpose,

and everything becomes a sport: ‘So that in addition to hockey, baseball, golf, tennis, and so on, there would also be the sports of business administration, jurisprudence, philosophy, production management, motor mechanics, ad, for all practical purposes, infinitum’ (Suits, 1978, pp. 175–176). In the era of robot manufacturing, self drive cars, GPS assisted farming and neural networks, the idea is a little less fanciful than it might have seemed even a mere forty years ago. It remains to be seen whether Frey & Osborne’s prediction, that 47 per cent of American workers will find their work automated over the next 10 to 20 years, comes to pass. If it does, their further suggestion is that ‘low-skill workers will reallocate to…tasks requiring creative and social intelligence’ (2017, p. 269) and we are left to wonder where those jobs are to be found.

Engaging with games at work

As the Gallup poll confirmed, our necessity to have a job does not make the job engaging or encourage us to work hard at it. When people have a job that fully satisfies them they will dedicate themselves to it, often irrespective of the level of financial reward. Many of us pursue charity work or a sporting activity with far greater engagement than any paid employment. The question of engagement emerges in a well known ethnological study by Donald Roy of a piecework machine shop in 1940s Chicago, in working conditions that Roy later described as ‘the pits’ (1980). Roy undertook this particular ordeal as research for his PhD dissertation, but the Chicago plant was only one of 24 ‘bottom rung’ jobs he experienced in his research career. Indeed, in an appreciation of Roy written 20 years after his death, Michael Burawoy (2001) subtitled his piece ‘Sociologist and Working Stiff’.

Roy was initially puzzled as to why highly skilled operatives restricted their output—playing a ‘game’ they called ‘making out’ (Burawoy, 2001, p. 454)—when they could easily earn more by working harder. He soon realised that this was the natural response to the management’s setting the rules for the game. Regularly exceeding the quota would cause it to be increased, simply elevating the future target. The workers, in other words, were behaving as perfectly rational players. But the making out game needed to be played carefully and with skill. The operators had to keep in step, neither over- nor under-producing within a narrow margin:

> in Geer's more coercive atmosphere, one foreman and the shop superintendent raised more than their eyebrows when I did not perform to minimum expectations. To keep these excitable authoritarians off my back, I was forced to approximate the production of others (Roy, 1980).

In the 1940s machine shop, Roy used a mechanical press and metal punches to stamp shapes from leather or plastic sheets. He found the work dull, mechanical and tightly constrained both in choices and physical actions. Machine operators were given a rigid schedule of requirements for the day's shifts and little or no freedom. Both Roy (1959) and Burawoy (1979) cite De Man's observation of the way in which workers, engaged in boring, repetitive work, find ways of breaking the monotony by injecting even a small element of creativity:

> All activity, however much brutalized by mechanization, offers a certain scope for initiative which can satisfy after a fashion the instinct for play and the creative impulse...Even when the details of performance have been prescribed with the utmost minuteness...there will be left for the worker certain loopholes, certain chances of escape from the routine...he will find it possible now and again to enjoy the luxury of self determination. (De Man 1927 in Burawoy, 1979).

Roy's initiative was to develop a game 'so elementary…that its playing was reminiscent of rainy-day preoccupations in childhood'. Whatever pieces the schedule of production stipulated, in shape or colour, Roy would set himself intermediate personal goals. Thus 'the game might go: "As soon as I finish a thousand of the green ones, I'll click some brown ones." And, with success in attaining the objective of working with brown materials, a new goal of "I'll get to do the white ones" might be set' (Roy, 1959, pp. 160–161). Clearly even the smallest trace of autonomy in decision making, will help to overcome tedium and allow the creative impulse to flourish. As Csickszentmihalyi & Bennett observed 'the fewer opportunities for action we perceive, the more bored we become' (1971).

By sheer coincidence, Burawoy carried out an ethnographic study in precisely the same plant thirty years later, but for him the question was not why workers did not produce more but why they worked so hard to make the quota 'even when the economic incentive was absent'. The conclusion was that the factory reflected the changed political framework of the 1970s. By

then unions had shrunk in power and influence, the revolutionary spirit had been subverted and the management approach had moved along a spectrum from 'a production regime based in coercion to one based in consent'.

Even so Burawoy found the environment and timed activities rigidly circumscribed, and, like Roy, looked for tiny points when he might 'enjoy the luxury of self determination…These relative satisfactions are often constituted in the form of games, which reduce the strain of an "endless series of meaningless motions"' (Burawoy, 1979, p. 78). The goals set by the management are constraints and to design a game within these constraints, however minimal, offers the worker some shade of independent meaning. For Roy and later Burawoy their game is entirely embedded in the management's; that is to say that their game and the game's rules cannot exist without the job. Furthermore, management 'actively participates not only in the organization of the game but in the enforcement of its rules' (Burawoy, 1979, p. 80). In the end it becomes unclear whether Burawoy's ambiguous term 'work games' describes his own and Roy's games, the management's, or a merged game of both.

The practice of rule setting

Rules are on the increase everywhere, supported by justifications of improving quality, increasing transparency, or achieving more efficiency. Management in every institution devises rules and it is a moot point which rules are the ones likely to bring about a desired improvement. Lupu & Empson (2015) focus on 'high status' professional accountants in the large firms. The people interviewed could be presumed to have a fair degree of autonomy and power within their respective organisations yet they described themselves as feeling 'helpless and trapped'. The conclusion is that their need to retain or improve on their position and rewards coopts them as players in a game-like system.

Like the accountants, academics are attracted to the rewards of success in their own academic game. One of the points of comparison between a job and a game was that we must have some way of knowing when the job or game is complete; a feedback mechanism. In academia this provides an opportunity for the game designers—those devising the scoring system and setting the rewards—to mould the players activities to follow a desired pattern and agenda (Willmott, 1995; Butler & Spoelstra, 2014). Gendron (2008) uses the the literature on

identity to examine the notion of an 'academic performer' as he explores the 'growing influence of journal rankings and performance measurement schemes over academia'. Players either follow the changing rules or abandon the game. An editorial in the *Journal of Management Studies* laments the fall in ethical standards and the cutting of corners produced by the pursuit of academic success and the career pressure on academics to 'survive or prosper' (Harley, Faems, & Corbett, 2014). In a 2013 *Guardian* interview Peter Higgs, the discoverer of the Higgs Boson, doubts if his 'breakthrough could be achieved in today's academic culture, because of the expectations on academics to...keep churning out papers'. Because of his lack of productivity, he notes, he became 'an embarrassment to the department when they did research assessment exercises…Today I wouldn't get an academic job. It's as simple as that' (Aitkenhead, 2013). In the modern university Higgs would be categorised as a 'loser' in a game where Bourdieu's concept of *illusio* recasts academic publishing as a form of game playing (Lupu & Empson, 2015, p. 1334).

Amabile suggests that, to achieve the tangible or extrinsic reward, there is a pressure to get through the process successfully as quickly as possible. Since, as she observes: 'any truly complex problem has many more dead ends than exits', experimentation becomes increasingly risky, there is a strong tendency to 'follow the beaten path' and the same set of solutions, or small variations of these, will be produced again and again (Amabile, 1998, p. 80).

Graeber (2015) describes his experience—and most academics will recognise it— of the remarkable and rapid change in proportion between staff employed for teaching in his university against staff employed for administration, so that the latter now outnumber the former. Despite the increase in administrative staff, over the past thirty years the academics have experienced an 'explosion' in the proportion of hours they must spend on administrative work. Some of this is undoubtedly due to the increase in numbers of students, but some of it is due to the growing number and rule-making function of bureaucratic jobs.

Play at work

Csikszentmihalyi (1990) sets out his concept of 'flow' as a state of total absorption by an activity that is fundamental to creativity and problem solving. The question then is what conditions produce the necessary level of engagement. Roy and Burawoy were clear that 'making out' was

not about money. They were motivated by 'the challenge of trying to win a game' (Roy, 1980, p. 332). Product design firm IDEO continually stresses the importance of playfulness of spirit as a necessary condition for creative problem solving (Kelley, 2001). Management courses include case studies of the way in which, in pursuit of creativity, organisations have institutionalised play into their structures. The example of Google is well known. Much has been written about the importance of autonomy and freedom of choice in releasing creativity. Amabile (1998) stresses the crucial role of intrinsic motivation and suggests that 'creativity is undermined unintentionally every day in work environments that...maximize business imperatives such as coordination, productivity, and control'. Productivity is a term that refers to the relationship between work and output, and is synonymous with efficiency. We are the most efficient problem solvers when we are fully and deeply immersed in the problem, irrespective of its ultimate utility.

Stories about successful business enterprises, or brilliant scientists and inventors describe the obsessive nature of their work. The successful ones (in monetary terms) are lauded and the many unsuccessful ones disappear from the pages. Yet society harbours a deep suspicion of the obsessive and we retain our tendency to associate the idea of the obsessive inventor or scientist with the word 'mad'. Apparently only success after the fact justifies the effort; Higgs after his breakthrough is treated very differently to Higgs before it.

An excellent illustration—virtually a laboratory study—of the relationship between obsessive problem solving and utility is to be found in Beckett's *Molloy* and his hero's 'Sucking Stones' puzzle. Since it is a work of literary fiction, any questions about the relative importance or utility of the problem to be solved are irrelevant, but the problem is ostensibly trivial. Molloy, having just collected sixteen pebbles from the beach, is seized by anxiety about how to evenly distribute them around his four pockets and suck them 'in perfect succession' one after the other ('not one sucked twice, not one left unsucked'). As absurd and pointless as this problem initially seems to us, we cannot help being drawn into Beckett's skillfull, detailed and absorbing account of the mathematical puzzle that develops. We find ourselves side by side with Molloy sharing his irritation at each setback and his triumph at each success. Thus in a biblical parody of our quest for meaning and purpose, as a solution dawns upon him, Molloy proclaims that: 'the meaning of this illumination...suddenly began to sing within me like a verse of Isaiah, or of

Jeremiah' (Beckett, 2009, p. 66). The intense concentration produced by the narrator's and reader's absorption with the problem is akin to the 9th dimension of flow, what Csikszentmihaly (1990) termed the 'autotelic experience' of the kind that constitute 'an end in themselves and are so enjoyable that they become intrinsically motivating' (Fullagar & Kelloway, 2009). Having intently followed along with Molloy's detailed attempts to solve the puzzle over the better part of six pages, and perhaps even taken some small pleasure in his successful solution to it, the reader is brusqely informed that 'deep down' Molloy 'didn't give a fiddler's curse' about it. The sixteen stones are reduced to one, which is eventually lost, discarded or swallowed. Beckett's exercise is brilliant and merciless, and perfectly demonstrates the way in which our engagement may be generated in an instant merely from a set of rules and a challenge.

Types of games

The depth of our engagement with either a job or game problem seems not to depend on the relative utility of its purpose—meaning the outcome to society, to the firm, or to management—but only to ourselves. It does not seem to matter, in that moment of engagement, whether the activity is autotelic or not. A game (or a job) may be characterised according to the extent to which it interacts with the 'real world', or its 'value'. We understand when we play chess that nothing in the non-chess world forbids or impels us to make any choice of action on the chess board, that when the end condition is reached the game is over; we put the pieces away and again traverse a game/not-game boundary. Breaks in games problematize this boundary. For instance, tennis is a long game that incorporates breaks so that players can recover; a cricket game lasts for five days; cyclists on the Tour de France have breaks overnight; role-playing games continue over many days, or weeks. A lunch break for a video game obsessive or a recreational game of chess for the professional footballer can be interpreted similarly: as just parts of the game that occupies a hegemonic position in the individual's life. In these examples the space between what is 'game' and what is 'not-game' may be difficult to identify, the boundary is fuzzy and there is a *heterotelic* relationship between them. Our jobs are associated with money, and so games that include a currency provide another useful set of examples. In the first category of game, in respect of its currency at least, the game is autotelic. For example the game of *Monopoly* has its own currency, but this cannot be exchanged for 'real' money. In

the second category, the internal currency of the game may be purchased with ‘real’ money but the transaction cannot be reversed. Facebook credits, Nintendo points and airline frequent flyer vouchers are examples of this type of *unidirectional* money flow. A further fascinating and instructive example may be seen in the 18th and 19th century 'Truck' system in Britain. This was the practice of paying employees with tokens that could only be exchanged for overpriced groceries at the company shop (Hilton, 1957, 1958). A third type of game allows *bidirectional* money flow. For example, the currency used in *Second Life*, Linden dollars, can be bought and sold for ‘real’ currency. Although it is beyond the scope of this paper, the development of the ‘blockchain’ and the appearance of crypto-currencies like Bitcoin adds further complexity.

There is a fourth type of a game which we term a ‘Klein bottle game’. In mathematics, a Klein bottle (Figure 1) is a one-sided, non-orientable surface. It is a three-dimensional version of the better known Möbius strip. The overarching feature of a Klein bottle is that it represents a world without boundary or edge: its inside is its outside. A traveller on the Klein surface may move in any direction and arrive back at their point of origin upside down. The introduction of the idea of a Klein bottle game allows us to interrogate the supposed boundary between the game and the non-game, since the Klein bottle game is an appropriate image for domains where the game and the non-game are indistinguishable. More precisely, in a Klein bottle game the player is unable to detect where in the game they are situated, the current game state, what the ‘winning’ or ‘losing’ conditions might be. Roy and Burawoy (and Beckett) suggest to us that, for the player, the immersion in the problem may be all.

Discussion

Metaphors are important in sensemaking (Lakoff & Johnson, 1980). This is especially so for those seeking to make sense of organization and organizing, as evidenced by the continued influence of Morgan’s (1986) path-breaking work, *Images of Organization*. More recently, *Human Relations* published a special issue (Örtenblad, Putnam, & Trehan, 2016) that considered the development of organization theory in light of Morgan’s original eight metaphors. A metaphor is a device for comparing and contrasting two domains, termed the source and target domains (Oswick, Keenoy, & Grant, 2002; Cornelissen, 2005). For example, if the target domain is ‘job’ then the source domain might be one not traditionally associated

with work, such as ‘game’. If the boundary between the source and target domains is unclear, or sufficiently permeable, a metaphor cannot be sustained. The similarity between games and business has previously been noted (Carr, 1968), though the notion that business is a game has been zealously rejected, perhaps over-zealously, because games have been understood as the zero-sum, competitive games envisaged in much of game theory (Binmore, 1999; Mathiesen, 1999; Solomon, 1999).

The Klein bottle game has the set of characteristics listed in Table 1. Like every game it has a set of rules, with players, regulators (e.g. referees), spectators, end conditions, some scoring metric, competition, winners, losers, currencies, and rounds or turns. Unlike autotelic or heterotelic games, the primary characteristic of a Klein bottle game is that there is no boundary to traverse; it is a non-orientable and non-directional surface. The game is everything there is. Neither the player, regulator nor spectator have a means of determining their position relative to one another. For a Klein bottle game the metaphor of ‘game’ is resisted in two ways, either as being something far greater than the not-game, or as being something far more trivial. But neither matters. The non-orientable, non-directional nature of a Klein bottle game produces a confusion that, perhaps paradoxically, explains our inability to situate ourselves. Academics might consider the proposition that academia is a Klein bottle game.

We have been taught to believe that play and work are separate domains; and that games are autotelic by nature. The Klein bottle game problematises this division, since on the Klein bottle surface the game/not-game distinction is meaningless. In the context of Roy and Burawoy’s workers a Klein bottle game looks like a game but is so hegemonic that both the work/non-work distinction and the game/non-game distinction are entirely lost.

Kolnai (1966, p. 105) in his advocacy of a closed, or autotelic, character for all games, quickly assigns games to a separate category from what he calls ‘“serious” activities with game-like aspects’. But Burawoy describes workers whose key roles in the production cycle gives them a power they exploit in a petty way, by making the machine operators wait on their pleasure. This behaviour certainly has a ‘game-like aspect’, but in what way is it ‘serious’ according to Kolnai’s classification? What does it even mean to be serious? Are Roy and Burawoy’s worker games less serious than the manager’s, or less efficient ways of achieving the objective? Are they even different games? A domain that has the character of a Klein bottle

game, like Roy and Burawoy's factory, is a game and not a game, serious and not serious at the same time. 'In the subnormal mentation involved in factory work, time is an enemy, and the game kills time' (Roy, 1980, p. 332). The Klein bottle game analogy challenges the traditional metaphor of the game-like activity, for how can we speak of game and not-game if they cannot be distinguished?

References

Adams, D. (1995). *The Hitch Hiker's Guide to the Galaxy: A Trilogy in Five Parts*. London: Heinemann.

Aitkenhead, D. (2013, December 6). Peter Higgs interview: 'I have this kind of underlying incompetence'. *The Guardian*. Retrieved from https://www.theguardian.com/science/2013/dec/06/peter-higgs-interview-underlying-incompetence

Amabile, T. M. (1998). How to kill creativity. *Harvard Business Review*, *76*(5), 76–87.

Aristotle. (1996). *The Nicomachean ethics*. (H. Rackham, Trans.). Hertfordshire: Wordsworth.

Bailey, P. (2007). *Leisure and Class in Victorian England: Rational recreation and the contest for control, 1830-1885*. Routledge.

Baker, W. J. (1979). The Leisure Revolution in Victorian England: A Review of Recent Literature. *Journal of Sport History*, *6*(3), 76–87.

Beckett, S. (2009). *Three Novels: Molloy, Malone Dies, The Unnamable*. New York: Grove Press.

Binmore, K. (1999). Game theory and business ethics. *Business Ethics Quarterly*, *9*(1), 31–35.

Burawoy, M. (1979). *Manufacturing Consent: Changes in the Labor Process Under Monopoly Capitalism*. University of Chicago Press.

Burawoy, M. (2001). Donald Roy: Sociologist and Working Stiff. *Contemporary Sociology*, *30*(5), 453–458. https://doi.org/10.2307/3089314

Butler, N., & Spoelstra, S. (2014). The Regime of Excellence and the Erosion of Ethos in Critical Management Studies: Excellence and the Erosion of Ethos in CMS. *British Journal of Management*, *25*(3), 538–550. https://doi.org/10.1111/1467-8551.12053

Caillois, R. (1961). *Man, play and games*. London: Thames and Hudson.

Carr, A. Z. (1968). Is business bluffing ethical? *Harvard Business Review*, *46*(1), 143–153.

Cohn, S. (2007). After the Black Death: Labour Legislation and Attitudes Towards Labour in Late-Medieval Western Europe. *The Economic History Review*, *60*(3), 457–485.

Cornelissen, J. P. (2005). Beyond compare: Metaphor in organization theory. *Academy of Management Review*, *30*(4), 751–764.

Crabtree, S. (2014). *Worldwide, 13% of employees are engaged at work*. Gallup.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.

Csikszentmihalyi, M., & Bennett, S. (1971). An exploratory model of play. *American Anthropologist*, *73*(1), 45–58.

Culin, R. S. (1907). Games of the North American Indians: Twenty-Fourth Annual Report of the Bureau of American Ethnology. *Smithsonian Institution, Washington*.

Culin, S. (1889). *Chinese games with dice*. Franklin printing Company.

Culin, S. (1895). *Korean Games with notes on the corresponding games of China and Japan*. University of Pennsylvania.

de Voogt, A., Dunn-Vaturi, A.-E., & Eerkens, J. W. (2013). Cultural transmission in the ancient Near East: twenty squares and fifty-eight holes. *Journal of Archaeological Science*, *40*(4), 1715–1730. https://doi.org/10.1016/j.jas.2012.11.008

Esteva, A., Kuprel, B., Novoa, R. A., Ko, J., Swetter, S. M., Blau, H. M., & Thrun, S. (2017). Dermatologist-level classification of skin cancer with deep neural networks. *Nature*, *542*(7639), 115–118.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, *114*, 254–280. https://doi.org/10.1016/j.techfore.2016.08.019

Fullagar, C. J., & Kelloway, E. K. (2009). Flow at work: An experience sampling approach. *Journal of Occupational and Organizational Psychology*, *82*(3), 595–615. https://doi.org/10.1348/096317908X357903

Gendron, Y. (2008). Constituting the academic performer: the spectre of superficiality and stagnation in academia. *European Accounting Review*, *17*(1), 97–127.

Gobet, F., Retschitzki, J., & de Voogt, A. (2004). *Moves in mind: The psychology of board games*. Psychology Press.

Graeber, D. (2015). *The utopia of rules: On technology, stupidity, and the secret joys of bureaucracy*. Melville House.

Harley, B., Faems, D., & Corbett, A. (2014). A Few Bad Apples or the Tip of an Iceberg? Academic Misconduct in Publishing. *Journal of Management Studies*, *51*(8), 1361–1363. https://doi.org/10.1111/joms.12104

Hilton, G. W. (1957). The British Truck System in the Nineteenth Century. *Journal of Political Economy*, *65*(3), 237–256.

Hilton, G. W. (1958). The Truck Act of 1831. *The Economic History Review*, *10*(3), 470–479. https://doi.org/10.2307/2591266

Huizinga, J. (1955). *Homo Ludens: A Study of the Play Element in Culture*. Boston, MA: The Beacon Press.

Kelley, T. (2001). *The art of innovation: Lessons in creativity from IDEO, America's leading design firm* (Vol. 10). Broadway Business.

Kolnai, A. (1966). Games and aims. *Proceedings of the Aristotelian Society*, *66*, 103–128.

Lakoff, G., & Johnson, M. (1980). Conceptual metaphor in everyday language. *The Journal of Philosophy*, *77*(8), 453–486.

Lehdonvirta, V., & Castronova, E. (2014). *Virtual economies: Design and analysis*. MIT Press.

Lupu, I., & Empson, L. (2015). Illusio and overwork: playing the game in the accounting field. *Accounting, Auditing & Accountability Journal*, *28*(8), 1310–1340. https://doi.org/10.1108/AAAJ-02-2015-1984

Mathiesen, K. (1999). Game theory in business ethics: Bad ideology or bad press? *Business Ethics Quarterly*, 37–45.

Mayer, R. E. (2014). *Computer games for learning: An evidence-based approach*. MIT Press.

McGonigal, J. (2011). *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. Random House. Retrieved from https://books.google.com/books?hl=en&lr=&id=Aa4j6YC1Vu8C&oi=fnd&pg=PT3&ots=GKe6aU54a8&sig=FuUkzWQS0AMRuV7KEk6eD3w3Oyw

Moore Jr, B. (2016). *Injustice: The Social Bases of Obedience and Revolt*. London & New York,: Routledge.

Morgan, E. S. (1966). Puritan Hostility to the Theatre. *Proceedings of the American Philosophical Society*, *110*(5), 340–347.

Örtenblad, A., Putnam, L. L., & Trehan, K. (2016). Beyond Morgan's eight metaphors: Adding to and developing organization theory. *Human Relations*, *69*(4), 875–889.

Oswick, C., Keenoy, T., & Grant, D. (2002). Note: Metaphor and analogical reasoning in organization theory: Beyond orthodoxy. *Academy of Management Review*, *27*(2), 294–303.

Pika, S., & Zuberbühler, K. (2008). Social games between bonobos and humans: evidence for shared intentionality? *American Journal of Primatology*, *70*(3), 207–210. https://doi.org/10.1002/ajp.20469

Rice, C. (1997). *Ungodly Delights: Puritan Opposition to the Theatre : 1576-1633*. Alessandria: Ed. dell'Orso.

Roy, D. (1959). ' Banana Time': Job Satisfaction and Informal Interaction. *Human Organization*, *18*(4), 158–168.

Roy, D. (1980). Review: Manufacturing Consent: Changes in the Labor Process under Capitalism by Michael Burawoy. *Berkeley Journal of Sociology*, *24/25*, 329–339.

Rubin, M. (1994). The Poor. In R. Horrox (Ed.), *Fifteenth Century Attitudes*. Cambridge: Cambridge University Press.

Russell, B. (2004). *History of Western Philosophy*. Routledge.

Sharp, J. (2015). *Works of Game: On the Aesthetics of Games and Art*. MIT Press.

Sicart, M. (2014). *Play matters*. MIT Press.

Smart, H. R. (1957). Language-games. *The Philosophical Quarterly*, *7*(28), 224–235.

Solomon, R. C. (1999). Game theory as a model for business and business ethics. *Business Ethics Quarterly*, *9*(1), 11–29.

Suits, B. (1978). *The Grasshopper. Games, Life and Utopia.* Toronto: University of Toronto Press.

Thompson, F. M. L. (1981). Social Control in Victorian Britain. *The Economic History Review*, *34*(2), 189–208. https://doi.org/10.2307/2595241

Trevelyan, G. M. (1944). *English Social History*. London: Longmans.

Walton, J. K. (1981). The Demand for Working-Class Seaside Holidays in Victorian England. *The Economic History Review*, *34*(2), 249–265. https://doi.org/10.2307/2595245

Weber, M. (2002). *The Protestant ethic and the spirit of capitalism* (3rd ed.). Los Angeles, Calif.: Roxbury Pub. Co. ; Oxford : Blackwell.

Willmott, H. (1995). Managing the academics: Commodification and control in the development of university education in the U.K. *Human Relations*, *48*(9), 993.

Wilson, R. (1987). 'Is this a Holiday?': Shakespeare's Roman Carnival. *ELH*, *54*(1), 31–44. https://doi.org/10.2307/2873048

YouGov. (2017). 37% of British workers think their jobs are meaningless. Retrieved 14 May 2017, from //yougov.co.uk/news/2015/08/12/british-jobs-meaningless/

Table 1: The characteristics of a Klein bottle game

	Characteristic	**Explanation**
1	Has game characteristics	It has rules, players, regulators, spectators, goals, a scoring metric, winners, losers, currencies, rounds, competition.
2	Has no boundaries	It is non-directional (as compared to unidirectional or bidirectional). It is non-orientable. It is hegemonic for the individual concerned.
3	Game metaphor is resisted and contested	Two forms of resistance: 1. Yes, it is a game, but, as football manager Bill Shankly once said, 'it's not a matter of life and death, it's more important than that'; 2. No, it is not a game. Seeing business as a game trivialises serious business and encourages unacceptable ethical behaviour.
4	It can produce ontological confusion	Its non-orientable character prevents one from knowing whether one is playing, working, or both simultaneously.
5	It can produce ethical confusion	The game ethic - poesis/techne; The wider ethic - praxis/phronesis

Figure 1: A Klein bottle