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Special Effectivities: On the Intersection of Spatial Knowledge and Bodily Skill

Ian Jones

Introduction

Over the past decade, the term "affordances" has nestled itself into a firm and comfortable position within the vocabulary of videogame theory, having found widespread adoption among both academic videogame theorists and practicing videogame designers. Exact definitions of the term vary, but within a fairly predictable range, with difference mainly stemming from individual authors' degrees of adherence to the term's use in the original context of ecological psychology, as set out by James J. Gibson, versus the term's use in HCI and experience design, as filtered through the writings of Donald A. Norman. The differences between definitions such as "the opportunities for action made available by an object or interface," "what an object offers an organism to do with it," or "the functional input-output relationship of an object in the context of an environment" may indicate minor deviations in theoretical background, but, by and large, there is widespread agreement on what the term "affordances" offers videogame designers, critics, and theorists (Mateas 2004: 24; Wilhelmsson 2006: n.p.n.; Pinchbeck 2009: 13). If nothing else, it has provided an invaluable shorthand for discussing the differences between objects that can and cannot be acted upon by various guns in first-person shooters—with special attention paid to guns that specialize in physics-based manipulation, such as *Half-Life 2*'s gravity gun, *Portal's* Aperture Science Handheld Portal Device, or, more recently, the block manipulator in *Antichamber*.

While it is undeniable that this sort of widespread use of the term provides theorists and designers with a convenient piece of vocabulary for discussing level design, action possibilities, and the distinction between robustly interactive and essentially inert features of a game's environment, it has the unfortunate effect of shaving off some of the more interesting aspects of the concept of affordances as regularly discussed in the field of ecological psychology. Within the ecological approach to perception, *affordances* are profoundly intertwined with issues of embodiment. Resting on an ontology that posits perception as a property of an organism-environment system, rather than as an ability possessed by a given organism, ecological psychology defined affordances as dispositional properties of a synergetic organism-environment system—as a description of features of the physical environment "partitioned relevant to an animal's, or more aptly a species of animal's, capacity for activity" (Turvey and Shaw 1979: 205). Affordances, then, are always in reference to specific bodily capabilities of the actant in question.

Videogame theory's use of the term "affordances" to roughly refer to "environmental features salient to in-game actions—especially those on which the player can enact a state change" shaves off many of these specific resonances of the term. Most notably, this approach to the term has the unfortunate tendency of assuming that affordances beam themselves, directly and un-problematically, from the screen to the player. While it is of course true that player pick up on affordances within the depicted game world, this narrow, split focus on player and screen essentially bypasses any discussion of the mediating figure of the avatar—the very avatar whose body ostensibly (within the game's fiction) performs the actions in question.

And why, one could reasonably ask, *should* we concern ourselves with the body that fictionally performs the actions in question? After all, throughout their history, videogames have been inconsistent, at best, in their provision of players with avatars that genuinely seem to possess bodies. Two-dimensional, third-person games, from *Super Mario* to *Super Meat Boy*, have long presented avatars that can instantly cancel momentum, or even change the direction of jumps (sometimes quite elaborately) in mid-air, removing any sense of physical weight or basic commitment to bodily action, and rendering the avatar as a sort of moving center-in-space, rather than physical body with mass and momentum, capable of fatigue or strain.[1] Meanwhile, first-person shooters have long been characterized by "floating gun syndrome," the feeling of controlling merely a mobile point of view more than an actual body. The fact that the movement possibilities of this mobile point of view are labeled as "walk," "run," "crouch," "strafe," and other recognizably human activities does little to prop up the rickety conceit that there are actually moving bodies residing behind these gestures. (What sort of bipedal body can strafe, run, and accurately aim at the same time?) With so little attempt to insinuate a bodily presence in these games—and so little practical differentiation in the abilities of the various supposed bodies behind the point of view—it is little wonder that discussion of affordances in games can often gravitate towards the capabilities of guns over the capabilities of the bodies holding them—it is guns, after all, that are often given the greatest sense of weight, of differentiation of strengths and limitations.[2]

But what if we were to retrieve some of the most specific resonances of the term affordances as used within ecological psychology, to address some of the more robust bodily implications of the term? I will be using this paper as an opportunity to explore some of the unique insights ecological psychology can offer videogame studies—insights that have to often been stymied by the incomplete manner in which its vocabulary has migrated into the field. To accomplish this, I will be focusing here on the term which complements "affordances" within ecological psychology, and which has too long been absent within videogame theory: *effectivities*. As noted above, within the ecological approach, "affordances" describe features of the physical environment considered as relevant to an organism's capacity for activity. "Effectivities," correspondingly, describe the causal propensities of an organism to bring about a particular action. In short, objects in the environment afford activities; organisms in environments effect activities.[3]

What are the benefits of this greater commitment to the terms and tenets of the ecological approach? There are two primary opportunities offered here. First, such an approach provides

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1 Game designer and Gamasutra blogger Eric Schwarz has recently and memorably characterized this approach to the avatar as "a point in space with a character model attached" (Schwarz 2013: n.p.n.). Relatedly, Rune Klevjer has characterized the 2D avatar in general as a type of "vicarious body," that "does not incarnate a perceiving body-subject," and therefore "never re-*positions* the body-subject of the player (Klevjer 2006: 145)
2 Josh Call has written incisively on this tendency of FPSs to relegate any "recognition of the body … to whatever weapons or items the player uses," using Namco's *Breakdown* as a counterpoint (Call 2012: 135). *Mirror's Edge* also features in Call's analysis, although his focus on its depictions of bodily harm and death depart from the concerns presented here.
3 The term effectivities was introduced into ecological psychology after James J. Gibson's death by such prominent figures within the approach as Michael T. Turvey, Robert E. Shaw, Edward S. Reed, William M. Mace, and Claudia Carello. For the definitions of the term which have served as the basis for my discussion here, see (Turvey and Shaw 1979; Prindle, Carello, and Turvey 1980; Turvey et al. 1981; Shaw, Turvey, and Mace 1982)

us with a wide array of rich vocabulary—not to mention a diverse collection of empirical data and theoretical frameworks that have been provided by the research project of ecological psychology—which can prove useful when analyzing those games in which space is thoroughly transformed by the bodily abilities of the player's in-game avatar. As noted above, certainly not all (or even most) games sustain the impression of controlling an avatar with a reasonably finite set of abilities, endowed with real weight, physicality, and embodiment. But, as the examples I will be examining here illustrate, exceptions to this trend do exist. When dealing with these exceptions, pairing the concept of affordances with that of effectivities opens up valuable avenues of inquiry into the ways in which the logic of video game spaces is always shaped by the avatars that inhabit them. Within game environments, some gaps afford jumping over; others afford falling into. Ledges afford grabbing, or they cannot be reached. Apertures can be squeezed into, or can present an impassible obstacle. Navigating game space possibilities such as these necessarily requires players not only to understand the principles governing the basic layout of spatial features in the game, but also the ways in which the bodily abilities of the avatar they control uniquely fit these features.

This leads directly into the second major opportunity offered here. The question of how players are able to quickly learn to recognize features of game environments in terms of the effectivities of the avatars they control is one that straddles two rich domains. On the one hand, it concerns practical issues of visual learning and techniques of conveyance within game design. On the other hand, it intersects deeply with long-standing issues in the philosophy of game fictions, including the ways in which the avatar stands as a point of ontological fusion between actual and fictional actions (and therefore actual and fictional skills), the relationship between user interface and game world, and the appropriateness of the notion of "identification" in addressing the relationship between player and in-game player character. This presents a unique and healthy opportunity to bridge game design theory with phenomenology, empirical research in perceptual psychology with taxonomies of mechanics and genre, and theories of fiction with HCI studies. It would be foolish to ignore any opportunity for such interdisciplinary conversations.

Painting the town red in *Mirror's Edge*

Released in 2008, firmly sandwiched between the 2007 release of the first entry in Ubisoft Montreal's *Assassin's Creed* series and the 2009 release of Sucker Punch's *inFAMOUS*, DICE's *Mirror's Edge* would at first seem to fit un-problematically into the subgenre of parkour-based 3D platforming, which witnessed an explosion of popularity in the early years of the seventh console generation of gaming. However, in the writing of the game's most ardent advocates, one can find a few more far-flung descriptors offered, including "racing game," and even "driving game" (Boyd 2013: n.p.n.; Pinchbeck 2013: 171n2). Certainly, the game's focus on chase sequences and time trials, paired with its unusual employment of a first-person perspective[4], which heightens its sense of pure kinesthetic giddiness, do much to explain the "racing game" label. The "driving game" designation, however, is a bit odder, and perhaps ultimately more telling. *Mirror's Edge* drifts from the generic norms of the platformer, and towards the direction of vehicle-based games, precisely in the expectations is places on the player to recognize and take complete responsibility for a unique set of

4 Although the choice of a first-person perspective for *parkour* games, or even simply 3D platformers in general, was unusual in 2008, *Mirror's Edge* has proved influential in this regard, with games such as *Brink* (Splash Damage, 2011) and *Titanfall* (Respawn Entertainment, forthcoming 2014) and *Dying Light* (Techland, forthcoming) following suit.

movement capabilities, grounded in the limitations of a consistent and decidedly non-cartoon physics. Unlike the distinctly "slack" controls of *Assassin's Creed*, in which holding town two buttons allows the player to force their avatar into an auto-jumping "free-running" mode (and unlike a 2D platformer such as *Super Meat Boy*, which task players with something more akin to the virtuosic manipulation of a cursor than control over a body in space), players of *Mirror's Edge* are expected to master the weighty and corporeal manner in which Faith, the game's player character, "handles."[5]

The game's first-person perspective complicates this further. The third-person view of other major parkour games allows players to easily gauge the height of walls in relation to their avatar, to easily pinpoint handholds and their distance from readily observable limbs. The situation shifts in *Mirror's Edge*, as the first-person view presents unique constraints on the available options for visual feedback. There are, in fact, several important things that one can ascertain a person's body simply by having access to their perspective on the environment: In terrains with a visible explicit horizon, for instance, the horizon optically bisects objects at the eye level of the perceiver, specifying the perceiver's own height in relation to surrounding objects in visual terms. Certainly, the height of various objects and structures (such as air conditioning vents and pipes, for instance) relative to Faith's height is an important consideration for the player. But this information is only really useful if the player also fully understands Faith's jumping and vaulting effectivities, in addition to her height. Recent studies in ecological psychology performed on parkour *traceurs* have shown that their perception of walls has adapted to their honed abilities, with the ultimate effect that they perceive walls to be shorter than do non-*traceurs*. As the authors of one study succinctly put it, "[p]erceived height is scaled relative to anticipated ability" (Taylor, Witt, and Sugovic 2011: 758). A player picking up the controller and diving into *Mirror's Edge*, however, most likely does not have a background in parkour training, and therefore has little means of anticipating Faith's abilities. Every manually executed jump over a gap, duck under a pipe, or run across a wall jump begs a question: How far can Faith jump? How low can she duck? How far can she run until gravity takes its toll? For DICE, these questions combine into one overriding conundrum: how to offer the player a first-person person view onto the optic flow of Faith's running while simultaneously "flavoring" that perceptual experience with Faith's knowledge about her own body's effectivities?

The solution *Mirror's Edge* employs is "runner vision," a feature that re-colors objects in the game's environment based on whether or not Faith is able to use them to plow her way forward. Pipes Faith can successfully jump to, air vents that she can crawl into, piles of boxes she can scramble up to vault herself over a normally un-scaleable wall, and jumping-off points on rooftops that will successfully land her onto the next rooftop (rather than splattered on the ground below) are colored bright red. This not only serves to immediately communicate to the player the affordances in the environment that match Faith's effectivities, it also serves to guide players' eyes to the next potential grab- or jump-off point, gently and intuitively pulling to them to the designer's suggested path. When runner vision succeeds, it provides the player with just enough information about available actions to keep the pace of the game running at a smooth clip, ensuring maximum enjoyment of the kinesthetic rush provided by the game's visuals. (Unfortunately, it does not always succeed, and critics were quick to point out the tedious dance of trial-and-error the game requires at those points in which red disappears from the screen entirely for minutes at a time.)

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5 I am borrowing the term "slack" here from Rune Klevjer (Klevjer 2006: 156).

Over the past few years, the traditional distinction, especially popular within film studies, between "diegetic" and "non-diegetic" elements in presentations of fictional worlds has increasingly fallen out of favor within videogame studies. Arguments that the distinction lacks the sufficient nuance and gradation necessary to adequately analyze the complex role user interface has in communicating aspects of game fictions to players have been forwarded repeatedly (and, in this author's mind, persuasively) (Klevjer 2006: 58–59; Jørgensen 2010; Jørgensen 2012: 146). Without belaboring this point, it is worth noting that the runner vision feature of *Mirror's Edge* stands as a sterling example of unique propensities games have to skewer the "diegetic"/"non-diegetic" distinction. Runner vision does not operate as a traditional heads-up display, hovering innocuously at the corners of the screen and refraining from penetrating the depicted space. Nor does it possess the cool detachment of traditional "navpoints" or directional indicator arrows, which enter into the perspectival space of the game world while distinctly marking themselves as intruding augmentations via insistent, garish glowing. Runner vision instead clings to the objects populating the game's environment like a fresh coat of paint—and, in fact, details such as a PSA that lists "a fondness for the color red" as a trait of runners suggest that players may, in fact, be seeing the remnants of an indicator system painted on by Faith's fellow rooftop couriers. But if that is the case, why can the inclusion of this paint be toggled on and off at will within the game's menu—and why, even when activated, does the coloration fade in and out of existence based on proximity? Conflicting signals such as these almost seem to indicate an overarching project on DICE's part to puckishly jam the spokes of any finely tuned theoretical apparatus attempting to maintain an absolute division between the game world and the game interface.

This refusal on the part of runner vision to sit neatly on any one side of the supposed gap between screen and game world could be mined as a source of endless, pedantic debates. I believe a much more productive focus, however, would be on a different gap: the gap between player knowledge and skill and avatar knowledge and skill. Rune Klevjer has characterized the player-avatar relation as a "'progressive mapping' between an actual learning process and a fictional learning process":

> "When the player has learned to time the jumps correctly, the avatar has learned to traverse the dangerous pits. When the player fails to perform, the avatar fails to perform; when the player improves, the avatar improves" (Klevjer 2006: 141).

Often, however, the overriding fiction of the game clashes with this logic of "progressive mapping." The instruction to the player in *Half-Life 2* to play around with the gravity gun as they master its range of functions is fictionally motivated by the fact that it is introduced to both the player and the player's character simultaneously. By contrast, in *Mirror's Edge*, Faith is established early on as a talented parkour *traceuse*, one whose training has assumedly endowed her with vast amounts of embodied expertise. Faith's body is not an implement that has recently picked up: It is something she has lived in all her life, and, following the game's fiction, we have every reason to assume that she knows how to use it.

The ways in which various games handle the imbalance of expertise between player and player character is something that has been insightfully examined by James Paul Gee, who has written extensively on the subtle ways in which expertise is often "parceled out, shared between, the virtual characters and the player" in games (Gee 2005: 47). However, Gee's narrow focus on certain modes of "professional" expertise (for example, the military expertise of players' squad members in *Full Spectrum Warrior*, or the thieving expertise of Garrett from the *Thief* franchise) results in some significant blind spots—for instance, how the notion of a "joint professional identity" applies even to a lowly platformer such as *Mirror's Edge*. Knowing the scope and limits of one's bodily effectivities is, in fact, a skill—a skill that, over the course of gameplay in *Mirror's Edge*, is distributed in much the same way as soldiering skills in *Full Spectrum Warrior* are, with different realms and degrees of responsibility assigned to both player and avatar. Faith in *Mirror's Edge* has the requisite expertise for recognizing pipes she can climb up and jumping-off points that will land her onto the next rooftop, but it is the player's responsibility to correctly time the inputs to perform these acrobatics. The game's solution to this disjunction is to literally color the player's perception, as a way of extending Faith's embodied knowledge outward into the space of her world.

Dynamic diameters in *Katamari Damacy*

Jonas Linderoth has claimed design tactics such as the highlighting of in-game objects, or supplying the player with distinct "vision modes," effectively obviate the need for players to actually learn to recognize affordances within a game's world on their own (Linderoth 2010: 6–7). Although runner vision in *Mirror's Edge* is arguably subtler than many other types of object highlighting one finds in games, Linderoth's points remain applicable here, and his claim is fair: The purpose of runner vision is quite obviously to provide a mental shortcut for players, to allow the quick picking up on a range of movement affordances that would otherwise be difficult to spot, especially given the game's quick pace. But what alternatives are there to this sort of allocation of responsibility in a game where the player is placed in control of such an unfamiliar range of movement effectivities? To answer this question, let us turn to a second example: Namco's *Katamari Damacy*. Of all of the many contrasts that could be made between these two games—one is first-person, the other third-person, one is a fast-paced platformer fueled by paranoid chase sequences, the other is a game of collection-based progression that operates as a goofy, exuberant burlesque of consumerism—the point of contrast I am most interested in the way in which they manage the unusual effectivities they hand to their respective players.

Placed in control of the diminutive (5cm in height) Prince of All Cosmos, players of *Katamari Damacy* are equipped with a *katamari*, a ball that can pick up anything smaller than itself, and tasked with eventually growing it to enormous proportions. For the purposes of this analysis, I will be considering that katarami itself, rather than the Prince, as the primary object of player visual surrogacy in the game. Supporting this approach is the fact that perceptual size constancy of the katamari is forcibly maintained on the game's screen, even as its actual diameter ranges from a few centimeters to potentially nearly a kilometer over the course of the game.[6] (As an effect of this, the Prince tends to correspondingly drift into invisibility, gradually disappearing as a visible on-screen agent—a process that occurs especially quickly in the later levels of the game.) During this continuous transformation, *Katamari Damacy* requires its player to harness the information presented onscreen to pick up on a wide range of affordances in its ever-rescaled environment, all organized around the central affordance-based

6 This size constancy is not absolute. Since the virtual camera in *Katamari Damacy* moves in and pulls back from the katamari given different situations (often pulling back to introduce new elements of the immediate milieu, or simply to highly the unwieldiness the katamari's current profile if some strangely-shaped object has recently been picked up), in terms of actual pixels, the size of the Katamari fluctuates from a diameter of around 140 pixels to roughly 270 pixels, seeming to average around 225 pixels in diameter. (All measurements of the size of elements in the visual display of *Katamari Damacy* in this paper are given in pixels, as distributed on the game's output on a 480x720 NTSC display; this is also the manner by which π values for objects in the game have been determined.)

conundrum that forms the background of the game's central mechanic: *pick-upable or not pick-upable*?

A good example of the range of affordances the player must navigate comes in the form of a set of wooden bleachers that make an appearance during the task of constructing the third star within the game. If, upon first arriving at these bleachers, the player has amassed so few items that their katamari is under 14cm in diameter, the first bleacher can still be rolled under. Upon returning to these bleachers with the katamari at 25cm, however, the bleachers now afford climbing, and rather than roll under the first one, the player can roll up the entire set and access the area above, filled with newly pick-upable items.

Here we are presented with a terrific opportunity to not simply borrow terminology from ecological psychology, but actively dip into its research methodology. As part of the push within the ecological approach to move away from extrinsic, "neutral" measurements of properties of the perceiver and the environment, towards intrinsic, body-scaled measurements, values stated in standard units for measuring height, distance, or mass are downplayed in favor of what are referred to as *π numbers*—unitless values determined by ratios of animal properties (*A*) to environmental properties (*E*). Instead of stating the height of environmental obstacles or opportunities in decontextualized units, then, the π number ratio, $\pi = E/A$, can be used to express the critical thresholds of affordance-perception in perceiver-scaled, organism-environment fit terms (Warren 1984: 686; Mark and Vogele 1987: 369).

Because of the constant change in size of the katamari throughout the playing of *Katamari Damacy*, the π numbers of various obstacles within the game's landscapes are also in a constant state of flux, along with their size on the display. Turning back to the bleacher example at hand, we can observe the following: At a <14cm katamari diameter, the bleacher height in π number terms is 1.31, indicating a rolling-under affordance, but no climbing-over affordance. At a 25cm katamari diameter, alternately, bleacher height is 0.73, and affords climbing-over, and not rolling-under.

Katamari Damacy explores not only rolling-under versus climbing-over affordances, but also aperture-passing affordances: In another part of the map of the game's third star task, a gutter partially blocked by a bucket can be easily passed through when if the katamari at 11cm in diameter (here, the aperture width is 1.37), but becomes impassible later on as the katamari grows. With the katamari over 45cm in diameter, the bucket can be easily picked up, removing the obstacle, but the katamari is now too large with respect to the gutter to fit through even in the absence of the offending bucket (the entire gutter width is now 0.71). The aperture can still be passed through, but only by spinning in place for a while, and losing large amounts of objects in the process.

Katamari Damacy, much like *Mirror's Edge*, introduces an avatar with an unusual range of effectivities, frequently requiring players to move in ways that they may not previously have been used to. In so doing, it requires players to constantly track gradual shifts in the ways in which the game's spaces open up, close off, and generally provide a kaleidoscopic array of different affordances for movement. Despite the hurdle this may initially present to the player, the game's katamari-scaled visuals provide an elegant and deeply intuitive system for communicating these unusual affordances to players, rendering features such as intrusive HUD elements—or even the more subtle color-based communication that *Mirror's Edge* relies on—utterly unnecessary. Nothing throws this elegance into relief as much as those moments in which it breaks down: those (mercifully infrequent) instances in which the game's level designers chose to thrown out consistency and cheat the numbers. For instance, at one point during the construction of the game's seventh star, players run into a fence that cannot be surmounted until the katamari reaches 2m in diameter, at which point it can be rolled over with brute force and a bit of perseverance. Given that with a diameter of 2m, the fence's height in π number terms is .53, this would seem to indicate a critical π value of roughly .53 for a fence-like obstacle vaulting affordance.[7] Very soon after mounting this fence, however, players encounter a fence-like row of road cones that remains completely impassible until the katamari is 3m in diameter. Given that, if the katamari remains at a diameter of 2m, this row of cones has only a .48 height, the critical π value previously demonstrated has been violated. The handy sign reading "↑↑↑↑↑ Over 3m" adorning the cones—a clear indication of the designers' "you must be this tall to enter" intentions—does little to mitigate the feeling that the game's previously fairly consistent perceptual rules have been overridden by an arbitrary design choice. Even if the player has not been assiduously tracking π numbers throughout (and I certainly was not on my first playthrough), this row of cones nevertheless emanates a vague aura of unfairness.

Conclusion

Character identification is a fraught issue within videogame theory, with questions of the impact of motor activity and agency frequently inserting themselves into discussions of narrative alignment and empathetic response. Sometimes, in the rush to address such issues, it is easy to lose sight of the fact that before we consider the player character as a fictional subject with whom we can become emotionally involved, we should probably first consider the avatar as an opening onto a game's space. Game spaces are never neutral warehouses of polygons; they are always, to borrow a phrase from Merleau-Ponty, "pervaded with lines of force," delineated by the possible actions of the avatar in question (Merleau-Ponty 1963: 168). The effectivities of the avatar always open up and constrain—in effect, we could say that they always *author*—the space of their respective games.

The concept of effectivities is more specialized than that of affordances, and it will always remain possible to coherently discuss affordance design in games in which a simple cursor remains the extent of embodiment players are offered. To discuss affordances in the absence of a corresponding engagement with the notion of effectivities in games featuring more robustly embodied avatars, however, is to miss a crucial opportunity for expanding our understanding of player characters and the spaces they occupy. Some examples in addition to the two examined in depth here would be games in which the player controls a character in different stages in their bodily growth (such as *The Legend of Zelda: Ocarina of Time*), games in which players control a non-anthropomorphized animal or otherwise nonhuman avatar (n-Space's flawed but fascinating *Geist* provides legions of examples here) or horror games that emphasize hiding, crawling, vaulting, and squeezing (such as the recent *Outlast*). In games such as these, the space of the game's world is shaped and crafted by avatars' bodies (and in terms of the knowledge, parceled out between player and player character, about these bodies' skills) to such a degree that it would be incoherent to separate them.

7 A critical π value is the boundary between the perception and non-perception of an affordance stated in π number terms, sometimes notated as π_c.

Games

ANTICHAMBER. Alexander Bruce, PC, 2013.
ASSASSIN'S CREED. Ubisoft Montreal, PlayStation 3, 2007.
FULL SPECTRUM WARRIOR. Pandemic Studios, PC, 2004.
GEIST. n-Space/Nintendo, GameCube, 2005.
HALF-LIFE 2. Valve, PC, 2004.
INFAMOUS. Sucker Punch Productions, PlayStation 3, 2009.
KATAMARI DAMACY. Namco/NOW Production, PlayStation 2, 2004.
THE LEGEND OF ZELDA: OCARINA OF TIME. Nintendo EAD, Nintendo 64, 1998.
MIRROR'S EDGE. EA Digital Illusions CE [DICE], PC, 2008.
OUTLAST. Red Barrels, PC, 2013.
PORTAL. Valve, PC, 2007.
SUPER MARIO BROS. Nintendo R&D 4, Nintendo Entertainment System, 1985.
SUPER MEAT BOY. Team Meat, PC, 2010.
THIEF: THE DARK PROJECT. Looking Glass Studios, PC, 1998.

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