

# Mediated and Situated Landscapes

## INTRODUCTION

Contemporary electronic culture defines discourse within the public realm and to some extent the physical shape of urban spaces. Electronic devices augment the functions of our daily lives. Video cameras oversee public safety, sensors track daily commutes, and wireless communication interconnects individual nodes into broader networks. At the same

time, individual users and their mobile devices extend these data networks through location-based, personal content to form user-centered data landscapes. Peer-to-peer user-powered networks allow for direct, yet often anonymous communication leading to new forms of social participation and creative opportunities for our globally connected, locally situated lives.

This new urban dimension is enabled by ubiquitous mobile devices. Always on, location-aware smartphones serve as portals to enter and navigate these multimodal landscapes. Geographic data, personal preferences, and audiovisual narratives merge into a single data-based landscape that extends the conventional definition of public spaces. Unlike users of past media, participants in these e-landscapes are both consumers and creators of the media culture-location continuum. Due to their bidirectional operability, mobile devices serve as both receivers and originators of data. Through the data collected by individual mobile phones, we are able to understand the dynamics and interests of social groups.

## TOWARDS CITY 2.0

The current progression from Web 1.0 to Web 2.0 (Web squared) is indicative of broader changes in our actions and expectations in the world. Concepts behind Web 2.0 are being adapted to other disciplines, such as finance, management, and education. In a 2.0 paradigm, businesses benefit from users' feedback, increased knowledge sharing,<sup>1</sup> to effect a broader customer base. Similarly, in education, the Web 2.0 paradigm shifts the focus from presentation to participation, from access to information by accessing teachers and students, effectively reframing the role of the faculty from knowledge source/expert to facilitator of learning.<sup>2</sup> In all these

**Andrzej Zarzycki**

New Jersey Institute of Technology

examples, knowledge centers in business and academics change become user centered. Consumers (students and users) are moving away from pure consumption and are becoming content producers.

Similarly, the Web 2.0 framework ports into urban environments and public spaces. Web 2.0 and urban spaces are denominated by a common framework—social networks. Urban spaces are no longer exclusively defined as distinct collections of physical buildings but as a dynamic networks of inhabitants who actively contribute to the space’s image. The traditional concept of a city and its mental image as defined by Kevin Lynch (1960) no longer suffices. Formative elements such as landmarks or nodes may still apply in a media-enhanced city, but they may also be virtual and ephemeral.

These elements can be no-longer-existing buildings that persist in residents’ memory or media creations such as the “Sex and the City” tour. In the latter, the tour organizers define city landmarks by situating them in the context of the TV show. These landmarks are often not-easily-recognizable structures that become visible as the result of a random “15 minutes of fame” associated with a popular TV show. This acquired prestige is used to entice prospective tourists: “Follow in the footsteps of Carrie & Co. as they conquer New York City! Drink where they drink, shop where they shop, and gossip where they gossip.”<sup>3</sup> While architecture provides a memorable spatial iconography, today’s media redefine established mental maps with scattered memories and glimpses of visual excitement. While the media-defined image of the city may be temporal, it is also emotionally engaging and fulfilling for a large portion of the public. Among other similar examples of media-infused landscapes are mental maps associated with Woody Allen’s and Martin Scorsese’s movies or with the Jerry Seinfeld TV show.

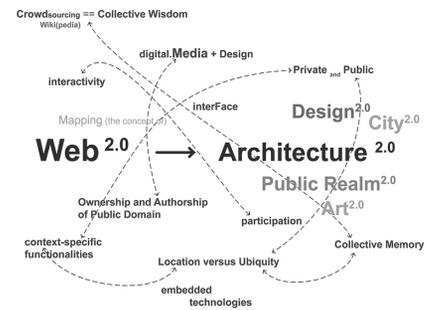
No-longer-existing buildings like the New York World Trade Center can continue to function as urban landmarks. The 110 Stories<sup>4</sup> mobile AR app virtually recreates the silhouette of Twin Towers and presents them overlaid over camera images from various locations in the city (fig.1). Once the most prominent landmark in lower Manhattan, the towers no longer serve as wayfinding elements. However, for those who want to reconnect with the iconography of the lost towers, the 110 Stories app provides a meaningful interface for collective memory.

Furthermore, these elements may no longer be recognizable or shared by the larger community nor contribute to collective memories. The focus toward users unavoidably shifts the mental maps of the public realm from objective “values” to subjective “feelings.” The status of a node or a landmark becomes context and user dependent.

City 2.0 returns to the phenomenological dimension advocated by Christian Norberg-Shulz. The idea of genius loci (spirit of place), a combination of place and the phenomena associated with it, resurfaces in today’s media-enhanced cities as a relevant and potent concept. Location-sensing mobile app functions map directly onto the genius loci. Media facades and augmented reality extend the realm of the nonphysical creating “atmosphere” that affects experience.



01



02

Figure 1: Manhattan skyline as viewed with 110 Stories mobile AR app.

Figure 2: Corresponding parities between Web 2.0 and Architecture 2.0.

The key attributes of Web 2.0—interactivity, crowdsourcing, context-specific behavior, collective knowledge, and collective authoring—share terminology with architecture and urban design. Terms such as “participation,” “private and public,” or “collective memories” are familiar code words for user-centered design.

Figure 2 shows a number of parities between Web 2.0 and Architecture 2.0: “interactivity” and “participation,” “context specificity” and “private,” “ubiquity” and “public,” or “collective wisdom/crowdsourcing” and “collective memory” as defined by Aldo Rossi (1982). “Interface” is another shared concept. Architecture and design can be seen a form of user interface (UI) focused on optimizing user experience (UX). The concept of a city as UI and UX to some extent is already present in Christopher Alexander’s *A Pattern Language: Towns, Buildings, Construction*. In this book, Alexander defined rules of spatial design based on observations how people interact within and experience urban spaces. He argued that these behavioral patterns should inform the built environment. Interestingly, his patterns could inform not only the physical but also the virtual world. The creator of SimCity, The Sims, and Spore games, Will Wright, acknowledges the influence Alexander’s work had on his games: “[a] more appropriate source of inspiration we have found is things like architecture, and product design, because those are inherently more interactive design fields. SimCity was actually originally inspired by Chris Alexander, and going back and looking at design in general I’ve found a lot of inspiration from Charles and Ray Eames, Jay Forrester, Jane Jacobs, all the people who are sort of spanning the division between design, theorist, and a specific field – you know, urban design, architecture or whatever. I find that triangle really interesting to draw inspiration from.”<sup>5</sup> Wright is one of many who see architecture and the city as a creative framework for media-based environments.

The mappings between Web 2.0 and City 2.0 are possible because both environments, Web (network) and city (public realm), are spatial and social constructs. They go beyond linearity of experiences with a multiplicity of depths and bifurcating possibilities. Their strength comes from the ability to interconnect individual nodes and create a system that supersedes its individual components. In many ways the Web and the city are two versions of the same interdependent social and cultural pattern.

#### **PUBLIC REALM AS SOCIAL NETWORKS**

Interactive and reactive media environments reflect human relationship with their surroundings. We inhabit spaces but spaces also impact and reformulate us. These new spatial and landscape attributes openly redefine the role architecture could play in the future, particularly its primary reading as a constant and permanent inscription into the landscape.

Web 2.0, one of the indicators of current media culture, not only redefines the way we interact online, but also sets new expectations for daily activities and physical environments. Accustomed to dynamic and interactive media interfaces, users expect similar flexibility, adaptability, and intelligence from everyday physical spaces and objects as from digital

constructs. Digital counterparts to the physical public realm may replace particular elements or bring back elements that are nonexistent, but most likely they will become an added layer of information inscribed onto preexisting space.

Cities are no longer purely physical artifacts—they are media, rooted in a graphical user interface (GUI), fine-tuned for the optimal user experience (UX), and accessed through ubiquitous networks and mobile apps. Cinematography influenced our perception of the discontinuity of time and space. Today we expect to be continuously plugged into a larger, ubiquitous technological continuum of social networks and data flows. Co-location and direct interactions register differently today in the context of electronic networks. Urban environments become prime testing grounds for the physical-to-digital cycle of augmented urban experience.

### PHYSICAL TO DIGITAL

While our physical world is being transformed by the digital, there continues to be a reciprocal relationship. Much of the electronic culture references the physical world. It may not be a coincidence that many successful games such as *Assassins' Creed* (fig. 3) or *The World of Tanks* (WoT) (fig. 4) are deeply rooted in conventional urban landscapes. The persistence of the physical world we know allows for easy navigation and the communication of ideas.

The relationship between physical and virtual is not just conceptual. It originates from the sum of subjective perceptions. Urban inhabitants merge their virtual and real lives into a single experiential continuum. Within cities, virtual and physical experiences seem to have irreconcilable yet mutually enriching relationship. Paradoxically, the more virtual our experiences get, the more extreme our real-world activities become. Parkour, for example, has a complex relationship to video games such as *Assassin's Creed* or *Mirror's Edge*. Similarly, electronic social networks facilitate a public display of private acts that break social norms even though the actual communication occurs in the confines of private solitary spaces.

Virtual environments, however, need not mimic the physical world which might reimagine social networks. The unique narrative logic and virtual identities of these worlds permit users to redefine themselves. Users can experiment with alternative identities unconditioned by reality which can, in turn, permeate everyday life.

These location-based games redefine our relationship with the built environment and, more importantly, with each other. They allow interactions uninhibited by socio-cultural conventions, allowing assumed identities and forming ephemeral, yet often satisfying, relationships with anonymous urban co-habitants. They fulfill Eliade's concept of fulfillment associated with contributing to, or being part of, a greater cause. While these can be delightful moments, the question is whether these new electronic interactions cause us to redefine physical and social structures, testing to what extent the virtual informs the physical and how the physical is dependent upon the digital world.



03



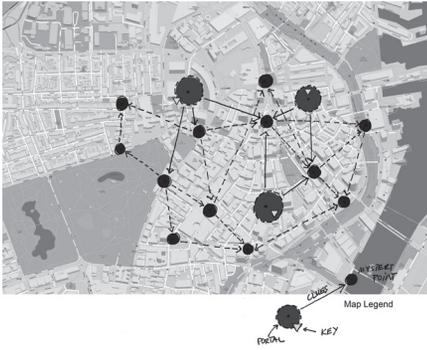
04

Figure 3: *Assassins' Creed* scene uses a medieval city as the backdrop for the game narrative.

Figure 4: *The World of Tanks* game involves urban and landscape scenery with topography that affects game play and performance.



05



06

## URBAN GAMES

Mobile phones have become powerful handheld computers that not only assist us in daily routines but also facilitate new forms of connectivity and affect the ways we operate within our social structures.

Contemporary media emerge as a combination of game play (gamification), narratives, and open-ended virtual environments that mimic real-time (RT) life. Media not only mirror reality, but increasingly become reality or its emotionally inhabitable alternative. As with sandbox games, the future of media lies not in storytelling, but in story-playing, an exact mapping of social behaviors within public spaces. This shift from consumption to production redefines not only the way we operate within cities but also our sense of citizenship and ownership.

Multiplayer gaming environments, electronic social networks, or mobile location-based games enable a diverse range of encounters without the need to personally engage with others face-to-face or reveal one's identity. Digital media make it easier for many to engage with strangers, particularly for those who feel apprehension in interacting with strangers or just want to explore their inner self outside a pre-defined social context. Through augmented-reality (AR) apps, these games are entering our physical surroundings, becoming context specific and a lot less virtual. As Simon Games puts it: "Games are the new cinema, they are breaking free from the console and hitting the streets. These games are a new way of exploring ideas, meeting people and having fun. Hugely social, they are a new entertainment form."<sup>6</sup>

While AR technology is routinely employed in the form of data overlays providing supplementary information for physical objects, it is also increasingly used to visualize less tangible structures and concepts such as historical events, cultural phenomena, and scientific processes. *TimeWarp* (Herbst et al., 2008), a mobile edutainment application designed as an AR game situated in Cologne, Germany, focuses on virtual reconstruction of historic buildings by superimposing virtual imagery over currently existing structures. The application also visualizes design changes that occurred over time to still-present structures.

Along the same lines, the Immersive Experience of Cultural Heritage project (Kim et al., 2009) uses an AR tour approach to provide tourists with a more realistic experience by placing virtual characters within historical structures. Visitors to the heritage sites of Sajeongjeon and Gangnyeongjeon in Korea can use their mobile devices to access additional facts associated with the physical content. While a similar approach is routinely used by many museums, this particular project does not rely on AR markers such as QR codes. It implements visual camera tracking of the rectangular display space to position its virtual actors without a need for visually intrusive markers.

Virtual environments allow for explorations of inaccessible or not-yet-materialized designs. They can be precursors of future physical urban spaces and potent drives in their realization. This is the case with AR and gaming environments (fig.5) developed by Tremont Underground Theater Space (TUTS) initiative<sup>7</sup>. This initiative is using AR gaming media not only to

Figure 5: Augmented Reality (AR) environment as social and design activism and urban games.

Figure 6: Mystery Spaces, a map with POIs arranged in the form of game play.

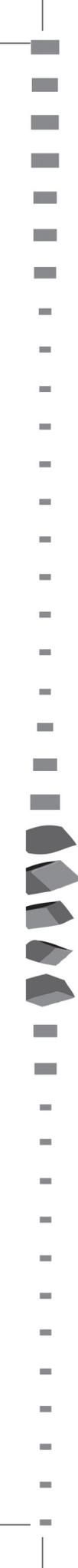
popularize ideas of the adaptive reuse of abandoned public infrastructure but also to build social constituency and connect with general public.(fig.6)

Originally developed by scientists at the University of Singapore,[8] Human PacMan ported an iconic 1980s arcade game into the physical environment, integrating mobile phone technology with a GPS system. The AR version of the arcade game used the streets of Singapore as the backdrop for the scenery and game navigation. The game was a direct translation of the original Pac-Man game concept, presented through a first-person shooter perspective.

The same concept was used in other projects such as Pac Manhattan,[9] where parts of Manhattan around Washington Square Park were temporarily integrated into a physical-virtual game<sup>10</sup> or more recently in the Layar AR Pac-Man developed by NHTV Breda University of Applied Sciences<sup>11</sup>. While the Human PacMan stayed true to the original game's me-versus-the-machine approach, utilizing GPS functionalities with a mobile screen as the window into the game environment, Pac Manhattan is an analog version that involves a multiplayer approach and traditional voice phone communication. The Pac Manhattan game is a less dynamic version of the original game, with players on the streets reporting their positions through the phone to human controllers who input data into the game console. In Pac Manhattan and other games of the same genre, the mobile technology is not yet the all-encompassing and all-knowing information framework, but rather a combination of multiple functionalities.

Pac Manhattan shares opportunities and impediments with massive multiplayer online (MMO) video games. While it provides an opportunity, though not yet the functionality, for social interactions with other players, it also is "dead" (off-line) for most of the time. Like MMO games, it requires the availability of concurrent players, and as such, it is most effective as an event-based activity. Another example of a mixed-reality game, "Can You See Me Now?"<sup>12</sup> is a chase game played simultaneously on the streets of a given city and online. Online participants can interact with the "ground" team, exchange tactics among themselves, and collaborate on the mission. Through the game interactions, online players gain a unique reading of the city through the eyes of the ground team. The physical urban context and feet on the ground provide an additional layer of spontaneity and unpredictability that makes games more exciting.

The Urban Interactive initiative blends mobile technology, improvisational actors, and a scavenger hunt or mystery-solving urban challenges. "It's like being inside of a reality TV show. Without the cameras," organizers claim, adding, "We merge reality and fantasy...and sometimes it isn't easy to tell them apart."<sup>13</sup> Urban Interactive uses its own proprietary mobile app—Urban Sleuth—in combination with pre-choreographed acting sketches and traditional geocaching to diffuse the boundary between the ordinary and the unexpected. Game participants move throughout the city while solving mysteries. Occasionally, an improvisational actor appears and provides players with additional clues. However, this cannot be taken for granted, since game participants are never sure if the advice comes from an



actor-agent sent by game organizers or just from strangers walking by who are willing to share their opinion.<sup>14</sup> In many ways, Urban Interactive feels less like a game and more like an elaborate artistic happening. Developed for individual events, such as college orientations and team bonding, these games feel closer to theatrical productions designed for refined cultural consumption rather than open-ended gaming worlds with adaptive narratives. Nevertheless, they provide an interesting conceptual combination of technology and arts that integrates well with city life.

Urban Interactive and Pac Manhattan place the game action within open urban environments. The events are partially pre-choreographed, but they are still the subject to the spontaneity of everyday public life and social reactions. For example, participants in these happenings can try to enlist passersby to gather information about opponents, ask for directions, or request other forms of assistance. In some instances a supposedly random passerby can actually be another game participant disguised as a pedestrian. This mixture of virtual with physical, and real with fictional, forms evocative narratives that redefine what is acceptable within public spaces. These narratives also provide a sense of mystery while reflecting and connecting to a broader media (consumption) culture. While Pac Manhattan is reminiscent of earlier geocaching games that relied on the simpler technology of GPS receivers, two-way radio, and online broadcasting, Urban Interactive proposes events that combine elements of reality TV and theatrical production. These events are more in tune with current media tastes but stray from interactive participation toward performance consumption.

The above examples are interesting game propositions; however, they may not be able to sustain interest. Their gratification is temporary and feels like an extension of leisure time, not an effective way to learn, conduct business, or fulfill the broader needs of everyday life. A number of location-aware apps attempt to fill this gap.

AR games and environments are often intended as part of the commercialized world. The gamification of business transforms location-aware apps into customer monitoring or opportunity-seeking applications. The pervasive Amazon.com phrase “Customers Who Bought This Item Also Bought” reflects on this paradigm. With the growing adoption of location-based applications including Foursquare, Yelp, and Google+, businesses are increasingly looking for new ways to engage their customers. Apps like VouchAR find discounts in local stores using their own database and also by searching others’ sites, including Groupon. Using the context-aware functionality, the app presents users with shopping choices—deals within immediate geographic proximity. While this is certainly an innovative technology, in many ways it virtualizes the a shopping street in many commercial districts. In this case, AR technology may allow for the reduction of advertisements and billboards in cities by porting them from the physical to the virtual.

A similar transformation, related to graffiti and tagging, is being actively pursued by the city of San Francisco, where “arts officials are embracing what they say is a digital-age solution to the decades-old problem of graffiti.”<sup>15</sup> These initiatives are made possible by AR authoring apps such as

ARTags or Tagwhat that allow content creation and placement within AR environments. This new content delivery method for the “decades-old problem” points to another important distinguishing feature of AR environments.

### COMMONALITY OF THE PUBLIC REALM

Unlike the physical city, which by its nature is always “on” and WYSIWYG (what you see is what you get), the AR world can be turned off. It can be either WYSIWYG or non-WYSIWYG, allowing for privacy within the public realm. This on-and-off condition puts in question a number of architectural and urban concepts, such as Rossi’s Collective Memory or Kevin Lynch’s mental maps. Terms such as “district,” “edge,” or “landmark,” become expressions created and shared by individuals operating in smaller groups. These highly individualized mental maps go beyond Lynch’s five elements.

Cities are no longer defined by specific forms and contents, as many would have seen them in the past, but rather as vehicles or exchange terminals that facilitate human interaction. Urban software (life within) is not directly and tightly connected to urban hardware (built form). Postmodern town planners’ focus on urban typology does not reflect the new dynamics of lived experience. While some of these ideas project idealized images of the city that do resonate with the public that routinely operate in media-rich contents.

As seen in the figures 7 and 8, the language of commerce—advertisements and store vitrines—migrates from the physical to the virtual street. While these advertisements are less noticeable for a pedestrian without mobile phones, they are equally dominant within the electronic layer. This physical-to-digital transition is not dictated by aesthetic or design considerations, as some may see the prevalence of store ads and billboards in figure 7 as a visual nuisance. The migration of commercial speech into virtual space is dictated by the opportunities for a higher level of adaptability and customization, with the focus on addressing individual needs of customers, further reinforcing the non-WYSIWYG nature of public spaces.

Similarly, collective memories are no longer set in brick and stone. Unlike in the past, when narratives were expressed through physically permanent, often laid-in-stone hardware-architecture, contemporary narratives are ephemeral, highly specific (local), and often virtual. The structure of these social networks is not expressed through the tallest tower, the largest square fronting a building, or elaborate stonework; rather, it is measured in the number of clicks, its viral existence—fast-spreading and contagious. While it may feel like populism, it is also democratization of the public realm: authorship and consequently ownership.

### EMERGING OPPORTUNITIES

The shifting focus from virtual-reality (VR) environments toward mixed-reality and AR frameworks indicates the reexamination of earlier visions of separated physical and digital worlds. The emerging picture fuses both dimensions into a single continuum. The newfound physical context adopted by AR games encourages players to push the boundaries of social conventions and accepted public behavior. Unlike more passive forms of



07



08

Figure 7, Commercial speech in real world spaces, Hong Kong.

Figure 8, Commercial speech into virtual environments, Anywhere, USA.

## REFERENCES

- Herbst, I., A. K. Braun, R. McCall & W. Broll (2008) TimeWarp: interactive time travel with a mobile mixed reality game. Pages 235–244 in *Proceedings of MobileHCI 2008*.x ACM Press, Amsterdam.
- Kim, K., Seo, B., Han, J. & Park, J. (2009). Augmented Reality Tour System for Immersive Experience of Cultural Heritage. In *Proceedings of VRCAI 2009*, Yokohama, Japan, December, 2009
- Lynch, K 1960, *The Image of the City*, Technology Press, Cambridge.
- Rossi, A 1982, *The Architecture of the City*, MIT Press, Cambridge.

## ENDNOTES

1. [www.computerweekly.com/news/2240082941/Using-Web-20-for-business](http://www.computerweekly.com/news/2240082941/Using-Web-20-for-business)
2. [www.stevhargadon.com/2008/03/web-20-is-future-of-education.html](http://www.stevhargadon.com/2008/03/web-20-is-future-of-education.html)
3. [www.zerve.com/OnLocation/SATC](http://www.zerve.com/OnLocation/SATC)
4. [www.110stories.com/](http://www.110stories.com/)
5. [www.iconeye.com/news/will-wright-interview](http://www.iconeye.com/news/will-wright-interview)
6. [www.pmstudio.co.uk/collaborator/simon](http://www.pmstudio.co.uk/collaborator/simon)
7. [the-tuts.org](http://the-tuts.org)
8. [www.newscientist.com/article/dn6689-human-pacman-hits-real-city-streets.html](http://www.newscientist.com/article/dn6689-human-pacman-hits-real-city-streets.html)
9. [www.pacmanhattan.com/](http://www.pacmanhattan.com/)
10. [www.nytimes.com/2004/05/09/fashion/09GAME.html](http://www.nytimes.com/2004/05/09/fashion/09GAME.html)
11. [www.layar.com/layers/pacman/](http://www.layar.com/layers/pacman/)
12. [www.blasttheory.co.uk/bt/work\\_cysmn.html](http://www.blasttheory.co.uk/bt/work_cysmn.html)
13. [urban-interactive.com/how](http://urban-interactive.com/how)
14. [www.nytimes.com/2007/04/16/business/businessspecial3/16active.html?\\_r=1](http://www.nytimes.com/2007/04/16/business/businessspecial3/16active.html?_r=1)
15. [www.reuters.com/article/2011/09/12/us-graffiti-sanfrancisco-idUSTRE78B72O20110912](http://www.reuters.com/article/2011/09/12/us-graffiti-sanfrancisco-idUSTRE78B72O20110912)
16. [urban-interactive.com/how](http://urban-interactive.com/how)

entertainment such as reality TV or even active-yet-confined console-based games, the AR framework incorporates physical activities and social interaction as well as encouraging exploration, learning, and discovery. Furthermore, as activities integrate digital media culture within the built environment—cities—these games provide an insight into our physical-digital selves and better understanding of ourselves and our communities.

The gamification of life and the contextualization of the virtual, discussed in this paper, directly connect to the dialecticism of digital physicality and physical digitality. When Urban Interactive entices possible customers with the teaser, “You are the protagonist in the story. Why watch a movie, when you can be inside one?”<sup>16</sup> it resonates closely with Simon Games’ declaration, “Games are the new cinema.” The new media are getting an increasingly strong hold on physical reality and are transforming the ways we operate within it. Whereas the gamification of contemporary life is already an acknowledged trend in business, education, and social networks, the reverse tendency—the contextualization of virtual selves in the form of location awareness or the physical actualization of avatars—is still being shaped by our hesitation toward restructuring our physical surroundings. What does it mean for reality when the digital becomes physical without losing its intrinsic dematerialized/virtual properties? ♦