# Oliver Harris

# "Comazone – Personal Analysis"

# BA (Hons) Interactive Media Production

# (2005-06)

# Bournemouth Media School

**Contents:**

The production of 'Comazone' started with the initial brainstorming of what projects could successfully be created in the allocated time to a high standard, with a keen emphasis on using as many hand drawn graphics as possible. Initially the time was to be taken in producing a set of games that were a quick-fire learning resource for 14-16 year olds, and rather than conforming to any curriculum the aim was to give a more universal understanding of subjects studied through entertainment. As the audience was secondary school children the aim was to permeate educational barriers and make learning entertaining via an absorbing storyline and school situations children could relate to. This was further refined towards the needs and desires of secondary school art students, but not within confines of exam boards – rather an overall expansion of the curriculum that they were already learning. The extended learning material was to be presented in such a way that learning could be an enjoyable and enthralling educational pursuit.

The learning resource was to incorporate comic book dynamics and have a branching narrative plan; depending on the 'grades' achieved throughout the game they would affect the cut-scenes. Various sources were researched such as the online *'BBC Bitesize' (BBC 2006)* website and postings on *'Gaia Online' (gaiaonline.com 2006)* (a website with a community of artists who were generally in the audience age range) for thoughts, innovative ideas and original feedback. Threading educational games with an interactive narrative was deemed as a route to take, as standalone games are played once and forgotten; replay value is added by open endings. A brief narrative was written where the player could choose to be either a secondary school boy or girl and each had a separate yet entwining story and depending on their 'final grade' the player would get different endings. The overall design was inspired by notebooks, ink spills, messy school paraphernalia, *'Grange Hill' (Grange Hill 1978)*, chewing gum and juxtaposed with

technological modern touches that fit the tone of the music – going for the elusive 'cool' status to appeal as widely as possible – hence using electronic music in an attempt to not alienate any one subculture (using a guitar 'emo' soundtrack would alienate a significant number). Stylistic touches to the main character such as a tiara were added; accessories as seen in *'Kingdom Hearts' (Square-Enix 2002)* . Sub-games based on the subjects in question were designed where the Art level had a selection of black and white canvases and the player had to splat with colour the correct one with questions being asked such as 'What style is Dali known for?'

It was this learning resource that was the basis for what Comazone became; which is a game that exists as entertainment for its own sake - consequently whilst still broadly the narrative being aimed at teenagers it is deliberately simple enough that anyone can play. The change in project occurred following the approval of a friend who specializes in sound design, whom allowed the use of a significant back catalogue of music to used in any project; to do this approval justice it seemed fitting to write an interactive game where the music was central to a manifesting atmosphere. Being aimed at a mid teenage audience the transient and elusive social tag of 'cool' had to be a goal to be aimed at – this was attempted via the use of the modern technologically produced music combined with an engaging narrative and gameplay elements that either asked the player to think (adventure sections) or take action rhythmically (arcade sections).

Creating Comazone was a way of amalgamating graphic design, narrative construction and music into an interesting and overall fun game to play. It was to be a homage to three different types of popular games from the past and intended to be blended into a cohesive whole (being the two dimensional *'Zelda' (Nintendo, 1987)* games, *'Space Invaders' (Invaders, 1978)* and *'Parappa the Rapper'(NaNaOn-Sha, 1996)/'Dance Dance Revolution'(Konami, 1999)/'Vib Ribbon' (NaNaOn-Sha, 1999))*. The setting of the game inside the protagonists mind allowed almost free reign creatively over what could be introduced as long as the ideas were connected with the emotion themes presented in each chapter, and similar to 'Parappa the Rapper' was to be a cultural mix of ideas. As Eric Zimmerman noted

"Parappa the Rapper is one example of a culturally hybrid object that successfully plays with Japanese and American music, visual style and narrative expectations and still deleivers a well crafted and innovative gameplay experience " (Zimmerman, 2003, p.89). Though the protagonist (Cognos) is male the three types of game (adventure, arcade and rhythm based) are non- gender specific to play ; ideally Comazone was constructed so that neither gender would feel segregated throughout playing out the narrative.

Many resources were researched so a wide combination of inspiration could be drawn upon. Considerations were drawn from popular culture such as japanese anime, western comic books and adventure/old shoot em up games, the films of Tim Burton and epic science fiction that explores the tenuous link between emotions and biology. These influences were apparent in their visual style, and weaving a mysterious and curious world was much easier following the research. *'Alice In Wonderland' (Carrol, 1865)* was studied as far as encoding symbolism into a dreamworld was concerned as parallels existed between the story of Alice and Cognos. The narrative was to be written in such a way that the player felt like they were being transported deeper into the world of Cognos' coma with each progressive level, and hence the identity of the game had to be strong throughout in its character, level visuals, sound, story and structure design. Instead of a surreal assault on the senses the design elements were carefully chosen to subtely decorate and flesh out the experience. The story was written as a mixture of macro-universal themes of existentialism, with the final level asking questions about the possibility of technological machines having emotions and therefore asking the question of what exactly defines a soul - these themes stemmed from inspiration after having read *'Consciousness Explained'(Dennett, 1991),* the philosophy of Plato's cave allegory and drawing from the involving story of *'The Matrix' (Wachowski's, 1999).* The product is aimed at the needs and desires of readers of comic books, people interested in graphic art in general, anyone with an interest in adventure games and those interested in playing frenetic rhythm based games with an otherwise absorbing storyline. Feedback throughout was very positive, and exhibiting the final piece online has allowed the correlation of constructive criticisms to be applied in improving the Comazone experience.

From the very beginning it was obvious how the little details would set the tone of the overall product I was aiming for and these can be seen in the deliberate misspelling of 'night' with regards to the NITE Agency, and the use of the brain diagram cut-scene as a method of telling the player what chapter they were on. The dialogue was written in rhyme, which was deemed to help supplement the 'Alice' style dreamlike quality that Comazone was to convey. Having villains based on universally recognizable human emotions and personifying them allowed exploration into how perhaps an emotion would deal with their very nature. Fury in particular was interesting to illustrate, as giving her a conscience allowed expression that a furious nature ultimately leads to regret whereas being doubtful and fearful just continue to manifest. Colour was used as symbolism with Doubt represented as purple, Fury as red, Fear as black and Nhil as white. The use of colour was especially important in embodying the emotional themes present and consequently each level was designed around a specific colour palette which tied in with the themes of sex, work and death that the first three levels were influenced by ; consideration went into designing without being sleazy, mundane or morbid (the less virtuous of the themes explored). Encoding personality into each of the characters was achieved not only by the use of vocals but also their graphic design, with the environments they inhabited and their situations presented.

To further accentuate the nature of being biologically trapped a heartbeat sound was used upon the death of a boss and on the title screen (complete with 'beating' background), the chapter introduction were based on areas of the human brain and the adventure characters (Lymph, Neural, Amyloid and Alexia) were named after biological terms and these added to the overarching idea that the world of Comazone took place inside Cognos' mind. Cognos' name itself came from the term 'cognitive' that is defined as conscious intellectual activity. After testing on an audience it became clear that the project successfully disclosed the ethereal atmosphere that was trying to be created, although some of the bodily references were just reasoned as being too weird.

The use of music throughout was especially important, and having the freedom to cutup and mould from a back catalogue of pieces aided the creation and tone of the game;

where pieces were found suitable for levels, and levels designed with specific pieces in mind. The arcade sections in particular were constructed around the boss themes present with the rhythm based powerups being allowed to be used in time to the music, and the bosses themselves being animated in time. The overall feeling and impression created by the game was aided no end by the selective process of forming the various sound loops and effects.

As Andrew Oliver wrote in Develop Magazine March 2006  -
"Successful arcade games must be easy to understand, with immediate pick up and play appeal but also some deeper level of gameplay techniques that reward the more skilled players" (Oliver, 2006, p.66) and hence the screen design of the boss arcade levels went through many changes to accentuate the simple nature of play but the deeper techniques (using the virtues) when the player has the chance. Whilst the action always was to take place in the centre of the screen it was reasoned not to clutter the border with too much useless information such as the current chapter being played, or the platinum diamond rhythm gauge when it was not being used. The 'health gauge' was always essential as Steven Poole wrote
"Whereas in Space Invaders the player's ship is destroyed by contact with one bomb, bullet or rock, later games further subdivide a life with a coloured bar representing 'health', which is degraded by damage to the players character. When the bar is completely empty the player's life is gone" (Poole, 2000, p.70). As colour as symbolism was so rife throughout the Comazone experience the colour of the bar proved to be problematic, as each of the virtues and each of the bosses had their own separate colours. Dark blue (azure) was decided to represent the lifeforce of Cognos as it was felt it represented a deep, thinking colour. Symbolism in general was a key part in illustrating the Comazone, with a eager emphasis on juxtaposition to add to the confusion Cognos was facing and to add to the overall unreal feel. Where chapter one's world of Doubt was based on the negative aspects of romance, purple lovehearts decorated the carpets. Doubt himself was presented in a surreal purple forest and river that whilst based on the natural and appealing, the deliberate colour aesthetics compliment the sadistic character u had to face. Chapter two's world of Fury in the workplace starts initially as a lifeless, vapid

computer lab until the arrival of Fury where the room becomes spread in red, complete with flamethrower computers and waving, weaving cables. Illustrating the world of Fear had a cold dungeon theme to it, as seen in many similar adventure games from the early nineties on the Nintendo '*Gameboy' (Nintendo, 1989) ('Zelda: Links Awakening' (Nintendo, 1993), 'Final Fantasy Adventure' (Square, 1991)* and this was supposed to have a somber tone to it to represent the discernible illness of fear; this was achieved through coffins and tombstones, along with extra detail added to the walls themselves to give a harsh, abrasive feel. Fear himself is battled in a similar graveyard but in a dark outside environment where the graves obscure some of the playing field to add a level of difficulty, before he transforms into an evil bat-skull creature. Again drawing from the Final Fantasy series (where often the final battle is set in an epic way, where a level might seem initially almost too easy to increase an unsettling atmosphere), the motive was to have the player asking how the game could get anymore involving after having completed a level based on death. Chapter four revolved around Nihil at the edge of the coma, and hence the colour scheme is white and light greys. Setting it upon a serene beach allowed experimentation with ideas that this place was the source and end of all life, and the 'Digi-Soul' characters were used to add a degree of technological philosophy into the mix. The final battle between Cognos and Nihil, is suitably epic, both in musical composition used, difficulty level and the sheer scale that Nihil appears from out of the waters of the Bleach Beach, which in turn was designed deliberately in the most sparse way possible without being too plain.

Dan Hodgson also wrote in Develop Magazine March 2005 -
"Give the player a goal, there should be an overarching goal for the player to achieve. (Hodgson 2005, p.59)" Including the 'memory gauge' to the right of the adventure sections granted the player an idea as to how far into the quest they were, and this was judged very positively throughout feedback as it was immediately clear how close towards completion a player may be. Difficulty curve, especially with the adventure level design was also commented upon as being well thought out as each progressive level gets more complex and challenging. The arcade boss fights were tweaked accordingly to

feedback until the balance was struck between being too hard and too easy, with attack animations and enemy health being added or subtracted depending on feedback given.

Cognos' character was designed to be stylized, yet non-descript enough that anyone would feel comfortable playing as him. Dan Hodgson described
"No need for the hollow man – speaking for myself, role playing enthusiasts, chat addicts and anyone who watches films or reads novels, it's quite good fun to be someone else for a change" ( Hodgson, 2005, p.59) so whilst the story of Cognos versus the NITE Agency was sculpted in the stylized fashion of the tone of the game it was felt that the main avatar was plain enough not to isolate any person from any cultural background who may decide to play Comazone. Similarly the other characters, whilst having negative roles to fulfil in the narrative had to be designed in such a way that they were appealing to the eye at the same time, so a balance again had to be struck stylistically.

Building the project from scratch technically had many issues. In the adventure sections the use of variables were assigned to hit-tests to pick up the objects and to get them to appear in the inventory. Originally Cognos was to remain central in the screen with the map moving around him, yet it was soon realized that building an intricate map would slow the game down too much, especially on old computers so the inertia walking that was originally used was replaced with a standard up/down/left/right movement on static room screens. Programming the way the rooms would function was a lengthy process where first all of a single level was placed into one movie clip, but Flash can only read programmed Actionscript when an object is already on the stage. Referring to objects outside within the level movie clip simply failed to work, so instead of using visibility to trigger different rooms it was decided to have each room on a separate frame. The actual program structure of the project therefore required consideration before any of it could actually be put into place. A few technical problems existed with the implementation of sound within Flash also, so whenever possible this was called using Actionscript to avoid any looping of music running over another loop. Overloading the visual memory within Flash was a case of trial and error, where camera pan-out tweens and filters mixed together (zooming out and reverse blurring) in the cut-scenes understandably slowed the

motion down considerably as the CPU runtime calculating the vectors was pressurized too much. The arcade sections had to be scaled down in ambition as tracing bitmap graphics into vector form from initial scans at too higher resolution to create detailed visuals had to be discarded in favour of single colour tone, smaller vector images (Doubt was initially traced at twice the maximum size he ever appeared on screen) - details had to be deleted to make it run smoothly. Parallax scrolling was also experimented with as a means of adding depth and perspective to the boss battles; unfortunately the battles slowed down too much with three layers of action moving from left to right and all the other action instances occuring. Again problems occurred when referencing using Actionscript before symbols appeared on the timeline; enemy projectile problems (having movie clips within movie clips) had to be within the single symbol movie clip of the enemy on screen. The LoadMovie command was also a new command that was used in the project where firstly the whole game was in a single Flash file, which caused problems with extremely long publishing time so the game was split into levels and hence these were loaded-in when required. The team members in my group could have been asked to do more, but as the product was so personal there was only a few jobs available such as the design of the Fear adventure level, which would later be manipulated with an alphaed central gradient layer in the middle to make it darker.

Minor stylistic changes were implemented throughout construction. The objects scattered throughout that Cognos was to give to the inhabitants were all linked to the elements of the levels in question, although some of the objects to be collected when illustrated simply did not look like the objects in question when vectorised, or were deemed too macabre by the test audience (the hacksaw in the third chapter was changed for a first aid kit). The bosses themselves had small details changed throughout production, especially the colour tones used to decorate their clothing. Originally the arcade bosses were to be side-on battles where the player attacked from afar, although this was replaced with the system currently in place where the player gets to fly around up, down left and right as it was felt that a greater degree of freedom was offered this way.

The arcade boss section format of a rhythm based shoot 'em-up could possibly be marketed towards those who download MP3s onto portable screened systems as a way of producing interactive music games. Innovation in the field still exists as the changing landscape of portable music pushes on; there is possible use of portable devices (especially MP3 players) in the future with regards to interactive musicals similarly where a band maybe controlled as avatars versus enemies that attack in time to their music. There is entertainment value present and gives another dimension to music, as videogames in the past have often been focused on the gameplay first and sound layered underneath afterwards. There is potential that a consumer can download a music MP3 with an optionally attached game or unlock a game on the website of the artists themselves; and rhythm based games have the prospect of offering learning/logic in a more entertaining form - there is the possibility of a new market where Flash games have an artists music heavily involved as a way for fresh consumers to hear their music. As Comazone is a standalone narrative it could be converted into any form of media, whether that be animation, motion picture or illustrated literature to support the game or be enjoyed as a separate media artefact. It is felt the cut-scenes in particular help a great deal in progressing the story, and the music is edited perfectly for each to enrich the atmosphere present.

In hindsight, the format of Comazone would work just as well on a smaller screen system such as a PDA, especially the adventure sections. Instead of working on an 1024x768 document, the arcade sections would function smoother at a smaller (800x600) resolution especially with an increased frame-rate. There were many aspects of the production experience that could have been tightened, especially with keeping to set deadlines and coordinating team members. Consequently there were a few factors in the game that could have easily have been technically implemented but had to be omitted due to lack of time. Giving each of the characters speech in the adventure sections, as in the first Chapter, should have been included as should further continuity throughout the game with the arcade score, so a successful player may unlock the concept art found on the title screen as a reward. Following from this a PHP database driven online high score table complete with recording of names would have added much in the way of replay value

and given the player further incentive, but this also had to be unfortunately omitted. A greater degree of musical accuracy involving the rhythm based elements (ie the placing on what frames the letters appear and disappear) could have been worked out especially considering the limitations presented with working in Flash as frames often get skipped when streaming music on different computers depending on bandwidth connection. Extra powerups (such as different widths or more rapid fire of Cognos' arrows) would have made the boss battles more varied. Random boss movements encoded by Actionscript would also add to replay value instead of having the bosses always move in the same patterns. More time should have been devoted to the actual boss engine itself, with further use of Actionscipt to allow the virtue projectiles to home in on the boss target to add a further dimension of thrilling action. The avatar itself should also be able to fire in a different directions instead of just up, the inclusion of a mouse to accurately fire at the enemy would add another element of control, and if firing was automatic then the player would not have to keep the spacebar held down. Very tiny issues that have since been rectified such as the speaking Digi-Soul within the fourth chapter being drowned out by the background sound would have been addressed with more time going into playtesting the later stages, which in turn would not have been a problem had the production time plan been more carefully adhered to. Being over ten megabyte the game is big for the internet, and with more time the project could have been refined and compressed further; either technically using Actionscript to program the arcade sections (which are timeline based) or via use of compressed bitmaps for static backdrops that were not to be scaled. There were a set of sound effects that were produced by the sound designer for firing in the arcade section and when picking up objects in the adventure section that failed to be included as they were made too late. Personally this project allowed the chance to reflect on coding skills that could be improved in Flash. Communication between team members proved to be creatively stimulating and worthwhile, and many lessons have been learnt in the production of Comazone regarding interaction with others who are creatively involved in the production process.

As a result it is felt currently the product, while engaging for the first time through, the narrative lacks replay value and this could have been rectified with a greater adherence to

the production plan. Designing towards a specific medium would also have helped acquire a greater degree of production accuracy as currently both being a web and CD-ROM based game Comazone is short of a specific target. The nature of the game conclusion leaves Comazone open to further work, with extra possible chapters and characters being introduced in a sequel. Originally there was to be a fifth chapter before the final level, of 'Confusion' who was an air based villain set in a dust storm desert. Many ideas were actually left out due to deadline and if working on the project again a lot more time would be granted towards processing the boss engine and making these battles more cohesive to play. A greater degree of exploration could also be granted towards the adventure levels with more thought going into room design as well as the overall structure of how each room joins the next. Most of the rooms were standard up, down left and right movement with the exception of two rooms in chapter three that hindered the player strategically, to increase the degree of exploration. Including a jump function would add another dimension to the player; consequently a platform element could be introduced. Flash itself showed limitations with the mechanism behind the virtues used in the boss battles, as it is not possible to program a single key press in Actionscript – rather if the player keeps the virtue keys of Q,W,E and R held down they will automatically gain the health and score granted regardless reward for rhythm. Working in Flash 8 ironically, whilst allowing many neat stylistic touches such as the 'outer glow' and 'blur' tools (it also does not seem to crash as much as MX 2004) proved to be a hindrance when hosting online, as currently a significant minority have the Flash 8 Player installed upon their computers, which working and publishing in MX 2004 would not have been a problem. Another lesson learnt involved unpredictable problems occurring, but ultimately problems that could have been avoided with foresight nonetheless.  Comazone has the potential to be expanded upon as many ideas were put forward, but never acted upon mainly because of time issues. The test audience who played the final game judged that the overall structure and cut-scenes fit in successfully conveyed the narrative with flair and style, although the possibility of a branching narrative would encourage further play once finished. The 'Practice' section upon the title screen was originally going to be an interactive adventure and arcade environment so players could hone their skills in the two areas before embarking on the Comazone quest

although time constraints again meant this had to be sorely omitted in return for a simple static screen explaining how to play. The ending screen had also been planned to be animated but this had to be exchanged for a static screen again.

Overall Comazone was produced both as a game and also a personal project to mix together narrative, philosophy and graphic design. James Murray suggests "Games – as the word play reminds us – are also intrinsically dramatic. They are enactments of life situations at varying levels of abstraction. Game design has a lot to offer to the general effort of domesticating the digital medium of making it more coherent, more expressive, more available for representing the widest range of human experience" (Murray, 2003, p.257). It is felt about the strong core narrative where the player feels as if a quest is being completed with each goal achieved, whilst not being entirely successful as a consistent and solid videogame, that this is made up in its stylistic design, and as interactive art Cognos and the NITE Agency speaks for itself.

**References:**

HODGSON (2005) 'Develop Magazine' – Intent Media, Herts

MURRAY J (2003) '*Re:Play*' – Eyebeam, New York

OLIVER A (2006) 'Develop Magazine' – Intent Media, Herts

POOLE S (2000) *'Trigger Happy: The Inner Life of Videogames'* – Fourth Estate, London

**Bibliography:**

**Books:**

HODGSON (2005) 'Develop Magazine' – Intent Media, Herts

MURRAY J (2003) '*Re:Play*' – Eyebeam, New York

OLIVER A (2006) 'Develop Magazine' – Intent Media, Herts

POOLE S (2000) *'Trigger Happy: The Inner Life of Videogames'* – Fourth Estate, London

SELLERS J (2001) 'Arcade Fever' – Running Press, Philadelphia

**Other Mentions:**

Legend of Zelda: Links Awakening (Nintendo, 1993)
Alice In Wonderland (Carrol, 1865)
Conscoiusness Explained (Dennett, 1991)
The Matrix (Wachowski's 1999)
BBC Bitesize (BBC, 2006)
Gaia Online (Gaia Online, 2006)
Grange Hill (Grange Hill, 1978)
Kingdom Hearts (Square-Enix 2002)
Zelda (Nintendo, 1987)
Space Invaders (Midway, 1978)
Parappa The Rapper (NaNaOn-Sha, 1996)
Dance Dance Revolution (Konami, 1999)
Vib Ribbon (NaNaOn-Sha, 1999)
Gameboy (Nintendo, 1989)
Zelda (Nintendo, 1987)
Final Fantasy Adventure (Square, 1991)

## Credits for other major productions:

### Ellen Banks
For Ellen I designed an amoeba nemesis for Norbert, a spaceship interior and aided the overall design production whenever I could.

### Juliette Fleming
For Juliette I designed an owl mascot, refined it so it would fit in better with her project and helped animate him.

### Charlotte Ross
I came up with the idea for a Terry Gilliam-esque title screen involving accordian keys the teeth of her project focus of Jason Webley. This was then implemented.

### Laura Dineen
I lent my vocal chords to her project in the form of a bumble-bee character.


## Facilities used and budget:

Flash 8 Authoring Environment - £70
Adobe Photoshop CS - £100
Audacity – Free
DAT Tape - £3.50
AppleMac PowerBook G4 - £1500


## Team Members and marks:
Ellen Banks produced a high quality background image for Comazone (Chapter III's adventure section). Mark 5/5

Juliette Fleming cutup vocal samples ready to be implemented into Comazone. Mark 5/5

**Annotated Actionscript:**

**ADVENTURE:**
*Sets the initial variables*
var score:Number = 0;

var ringCollect = false;
var ringGive = false;

var vcardCollect = false;
var vcardGive = false;

var flowerCollect = false;
var flowerGive = false;

var necklaceCollect = false;
var necklaceGive = false;

var toyCollect = false;
var toyGive = false;

*Tells Cognos how to walk*
stop();
walkClip_mc.stop();

myListener = new Object();
myListener.onKeyDown = function() {
    if (Key.getCode() == Key.DOWN) {
        walkClip_mc.gotoAndStop(3);
        walkClip_mc.WalkClipDown_mc.play();
    }
    if (Key.getCode() == Key.UP) {
        walkClip_mc.gotoAndStop(1);
        walkClip_mc.WalkClipUp_mc.play();
    }

```
        if (Key.getCode() == Key.RIGHT) {
                walkClip_mc.gotoAndStop(2);
                walkClip_mc.WalkClipRight_mc.play();
        }
        if (Key.getCode() == Key.LEFT) {
                walkClip_mc.gotoAndStop(4);
                walkClip_mc.WalkClipLeft_mc.play();
        }
};
myListener.onKeyUp = function() {
        if (Key.getCode() == Key.DOWN) {
                walkClip_mc.gotoAndStop(3);
                walkClip_mc.WalkClipDown_mc.stop();
        }
        if (Key.getCode() == Key.UP) {
                walkClip_mc.gotoAndStop(1);
                walkClip_mc.WalkClipUp_mc.stop();
        }
        if (Key.getCode() == Key.RIGHT) {
                walkClip_mc.gotoAndStop(2);
                walkClip_mc.WalkClipRight_mc.stop();
        }
        if (Key.getCode() == Key.LEFT) {
                walkClip_mc.gotoAndStop(4);
                walkClip_mc.WalkClipLeft_mc.stop();
        }
};
Key.addListener(myListener);

//moving
walkClip_mc.onEnterFrame = function() {
        if (Key.isDown(Key.RIGHT)) {
                this._x += 15;
        }
        if (Key.isDown(Key.LEFT)) {
                this._x -= 15;
        }
        if (Key.isDown(Key.DOWN)) {
                this._y += 15;
        }
        if (Key.isDown(Key.UP)) {
                this._y -= 15;
        }
};
```

*Wall boundaries*

```
upTest = function (bar1) {
        if (_root.walkClip_mc.hitTest(bar1)) {
                _root.walkClip_mc._y += 15;
        }
};
downTest = function (bar2) {
        if (_root.walkClip_mc.hitTest(bar2)) {
                _root.walkClip_mc._y -= 15;
        }
};
leftTest = function (bar3) {
        if (_root.walkClip_mc.hitTest(bar3)) {
                _root.walkClip_mc._x += 15;
        }
};
rightTest = function (bar4) {
        if (_root.walkClip_mc.hitTest(bar4)) {
                _root.walkClip_mc._x -= 15;
        }
};
charTestOne = function (bar5) {
        if (_root.walkClip_mc.hitTest(bar5)) {
                _root.walkClip_mc._x += 15;
        }
};
charTestTwo = function (bar6) {
        if (_root.walkClip_mc.hitTest(bar6)) {
                _root.walkClip_mc._y += 15;
        }
};
charTestThree = function (bar7) {
        if (_root.walkClip_mc.hitTest(bar7)) {
                _root.walkClip_mc._x -= 15;
        }
};
charTestFour = function (bar8) {
        if (_root.walkClip_mc.hitTest(bar8)) {
                _root.walkClip_mc._y += 15;
        }
};
charTestFive = function (bar9) {
        if (_root.walkClip_mc.hitTest(bar9)) {
                _root.walkClip_mc._y += 15;
        }
```

```
};
charTestSix = function (bar10) {
        if (_root.walkClip_mc.hitTest(bar10)) {
                _root.walkClip_mc._x -= 15;
        }
};
charTestSeven = function (bar11) {
        if (_root.walkClip_mc.hitTest(bar11)) {
                _root.walkClip_mc._x += 15;
        }
};


Room1_mc.HorWallOne_mc.onEnterFrame = function() {
        upTest(Room1_mc.HorWallOne_mc);
};
Room1_mc.HorWallTwo_mc.onEnterFrame = function() {
        upTest(Room1_mc.HorWallTwo_mc);
};
Room1_mc.HorWallThree_mc.onEnterFrame = function() {
        downTest(Room1_mc.HorWallThree_mc);
};
Room1_mc.VertWallOne_mc.onEnterFrame = function() {
        leftTest(Room1_mc.VertWallOne_mc);
};

Room1_mc.VertWallTwo_mc.onEnterFrame = function() {
        rightTest(Room1_mc.VertWallTwo_mc);
};

        _root.Room1_mc.EnterRoom2a_mc.onEnterFrame = function() {
        if (_root.walkClip_mc.hitTest(this)) {

                _root.gotoAndStop(11);
                walkClip_mc._x=512;
                walkClip_mc._y=613;
        }

};
```

*An example of Sound Control*
```
_root.s.stop("chapterone");
s=new Sound();
s.attachSound("beforefight");
s.start(0,1000);
stop();
```

**ARCADE:**

*Sets Cognos' projectile and allows him to move*
```
var score:Number = 0;
_root.s.stop("dead");
laser_mc._visible = false;

var laserCounter:Number = 1;
var maxLasers:Number = 3;
var depthCounter:Number = 1;
_root.cognosClip_mc.onEnterFrame = function() {
        if (Key.isDown(Key.SPACE) and (laserCounter<=maxLasers)) {
                laserCounter++;
                laser_mc.duplicateMovieClip("laser_mc"+depthCounter, depthCounter);
                _root["laser_mc"+depthCounter]._visible = true;
                laserShoot.apply(_root["laser_mc"+depthCounter]);
                depthCounter++;
                if (depthCounter>maxLasers) {
                        depthCounter = 1;
                }
        }
        if (Key.isDown(Key.RIGHT)) {
                this._x += 0;
        }
        if (Key.isDown(Key.LEFT)) {
                this._x -= 0;
        }
        if (Key.isDown(Key.DOWN)) {
                this._y += 0;
        }
        if (Key.isDown(Key.UP)) {
                this._y -= 0;
        }
        if (Key.isDown(Key.RIGHT) && this._x<944) {
                this._x += 20;
                //foreground_mc._x -= 5;
                //background_mc._x -= 10;
        }
        if (Key.isDown(Key.LEFT) && this._x>80) {
                this._x -= 20;
                //foreground_mc._x += 5;
                //background_mc._x += 10;
        }
        if (Key.isDown(Key.DOWN) && this._y<550) {
                this._y += 15;
```

```
        }
        if (Key.isDown(Key.UP) && this._y>250) {
                this._y -= 30;
        }

};


Programs Cognos' attack
_root.Doubt_mc.onEnterFrame = function() {
        if (this.hitTest(cognosClip_mc)){
                _root.cHealth_mc.nextFrame();
        }};

laserShoot = function () {
        this.pos = function() {
                this._x = cognosClip_mc._x;
                this._y = cognosClip_mc._y-100;
        };
        this.pos();
        this.onEnterFrame = function() {
                this._y -= 40;
                if (this._y<-30) {
                        laserCounter--;
                        this.removeMovieClip();
                }
                        if (this.hitTest(Doubt_mc)){
                        _root.score+=10;
                        _root.dHealth_mc.nextFrame();
                        this.removeMovieClip();
                        laserCounter--;
                }
                //if (this.hitTest(dShoot_mc)){
                        //_root.score+=50;
                        //_root.dHealth_mc.nextFrame();
                        //_root.dShoot_mc.play();
                        //this.removeMovieClip();
                        //laserCounter--;
                //};
        };
};

Refers to the PowerUp Virtues
var myQ = false;
var myW = false;
var myE = false;
```

```
var myR = false;
myListener = new Object();
myListener.onKeyDown = function() {
        if (Key.getCode() == Key.DOWN) {
                cognosClip_mc.gotoAndStop(2);
        }
        if (Key.getCode() == Key.UP) {
                cognosClip_mc.gotoAndStop(3);
        }
        if (Key.getCode() == Key.RIGHT) {
                cognosClip_mc.gotoAndStop(5);
        }
        if (Key.getCode() == Key.LEFT) {
                cognosClip_mc.gotoAndStop(4);
        }
        if (Key.getCode() == 81) {
                myQ = true;
        }
                if (Key.getCode() == 87) {
                myW = true;
        }
        if (Key.getCode() == 69) {
                myE = true;
        }
        if (Key.getCode() == 82) {
                myR = true;
        }
};
myListener.onKeyUp = function() {
        if (Key.getCode() == Key.DOWN) {
                cognosClip_mc.gotoAndStop(1);
        }
        if (Key.getCode() == Key.UP) {
                cognosClip_mc.gotoAndStop(1);
        }
        if (Key.getCode() == Key.RIGHT) {
                cognosClip_mc.gotoAndStop(1);
        }
        if (Key.getCode() == Key.LEFT) {
                cognosClip_mc.gotoAndStop(1);
        }
        if (Key.getCode() == 81) {
                myQ = false;
        }
        if (Key.getCode() == 87) {
                myW = false;
```

```
        }
        if (Key.getCode() == 69) {
                myE = false;
        }
        if (Key.getCode() == 82) {
                myR = false;
        }

};
Key.addListener(myListener);

//* _root.Qgauge_mc.onEnterFrame = function() {
// if  (myQ==true) {
//trace("hit Q");

//}
//};
//guage_mc.onEnterFrame = function() {
//*if (boss1_mc.Q_mc.hitTest(this)) && (Key.isDown(Key.getCode)==81) {
//*boss1_mc.score+=50 && cognosClip_mc.nomove_mc.eye_mc.gotoAndPlay(2);
//*}
//*};
```