GAMES, LITERACY, LITERATURE: rules of grammar, rules of play

Computer games and English still seem like uncomfortable bedfellows. Thrown together, they evoke old (but still smouldering) anxieties about cultural value. It's a sharper version of the persistent clash of the values of literary studies, and the values of studying popular culture. In many Anglophone contexts, these differing traditions are realised as the awkwardly-related domains of English and literacy education on the one hand, and media education on the other.

So one version of this debate is, in what kind of curricular world would we teach literature and computer games in the same breath, as it were? How would we negotiate the different tastes, values, structures, reading practices, conceptual understandings, situated experiences which they seem to involve?

Behind this apparent fault-line or fracture – between the content of the literature curriculum and the media curriculum – lies another ancient fault-line – between literature and language. My argument here will be, of course, that we need to repudiate this fracture (again), with its old stories of literature versus linguistics graduates, language versus literature exams, the colliding ideologies of appreciation on the one hand and analysis on the other. But I will argue here that, while the old debates are given fresh life by the instance of computer games, they are also offered new solutions, new slices at the Gordian knot, new exits from the labyrinth. On the one hand, games extend the experience of popular narrative for children. My chief example here is currently Harry Potter – how do we need to reconceive literacy to understand how children experience the *mythos* of Harry Potter across book, film and computer game, in the context of what Henry Jenkins calls 'convergence culture' (Jenkins, 2006)? On the other hand, however, games are based on design principles, even grammatical structures, which are directly comparable to those which operate in other systems of signification, including language. I hope to show in this chapter how we might think about all this; as well as how we might approach it with students in the classroom. While this kind of work can, of course, be carried out at different levels of complexity with any age group, the examples I will use here are mostly drawn from the lower end of the secondary phase – Year 8 in the UK (12-13 years). The examples come mostly from a funded research project in which we developed a game-authoring software tool for children to use in school. [1]

Game-grammar and social semiotics

In thinking about what kind of 'grammar' games might use, I have found social semiotic theories of visual design useful. Kress and van Leeuwen (1996) adopt three overarching functions of visual media which I will follow in this chapter[2]. They call these

[1] *Making Games*, funded under the PACCIT-Link programme (People at the Centre of Communication and Information Technology), by the Economic and Social Research Council and the Department for Trade and Industry. The development of the software was carried out by Immersive Education Ltd. The partner schools in the project were Parkside Community College, Cambridge, and Charles Edward Brooke Community School, Lambeth, London.

[2] Derived from Halliday's three linguistic metafunctions: ideational, interpersonal, textual (1985)

representational, *interactive* and *textual*; though I will change the last category to *compositional*, which I find more transparent.

So here, we can think about *representation*: how games represent aspects of the world, or construct fictional worlds, in ways that will seem familiar in many ways to the core business of English and of media education. We can look at how elements of narrative such as characters, events and locations are constructed, what kinds of meanings they convey, and why they are important to those who made the text or those who read, watch and play it. In the case of a trans-media text like Harry Potter, we can also think how these aspects of narrative change across book, film and game.[1]

We can look at how games allow forms of *interaction* between participants: how the game addresses the player; how the designer addresses the player through the game; how the player engages with this address, and returns with particular responses, demands, actions.

And finally we can look at how games are organised and *composed* – what design principles lie behind them.

These categories can help us (and, at a different level, our students) to think in what ways games carry out functions that are similar to those of other narrative media. However, as scholars in the new field of game studies often point out, and as anyone who has played a computer games knows, games are also different from older media. Most obviously, they are playable. Students of games have, then, had to reconsider fundamental notions of *game* and *play*, and have proposed various versions of each, and of the relationship and distinctions between them. An often-cited model is that of the French play theorist Roger Caillois, who distinguished between two forms of play: *ludus* and *paidea* (1958/1979). The former is strictly rule-governed; the latter is more open and chaotic. A couple of examples might help. If we think about young children playing "I'm the King of the Castle", we can see that there are vague kinds of rules. There must be a castle (a mound, a box, a table) to be conquered, and to make a physical distinction between high and low, the territory of winner and loser. There's a rule that specifies a 'win-lose' state. But other than that, there are no complex rules. The richness of this game will come from more open-ended playful activities – the language children will use to assert status, compete, make jokes; the gestures that signify victory, the objects or clothing, real or imaginary, that might signify kingship. So we can say that here, the emphasis is on *paidea* rather than *ludus*.

[1] All the film adaptations of the Harry Potter novels have been adapted as computer games across a range of platforms, by the UK company Knowonder, commissioned and published by Electronic Arts. For a full discussion of literacies across book, film and game, see Burn, A, 2004.

By contrast, nought-and-crosses is very clearly a game. It has many rules – two players, turn-taking, straight lines, three-in-a-row, a three-by-three grid, noughts versus crosses, and so on. The play here is clearly closer to Caillois' *ludus* than his *paidea*. [1]

I'm not suggesting that 12 year old students necessarily learn about Caillois's concepts – though of course older secondary students could learn this with rather less difficulty than they might encounter in learning about subordinate clauses, laws of motion, or the formula for quadratic equations. But more simply, and maybe more importantly, 12 year-olds, if asked what are the features of games, will produce long lists which can be further scrutinised, classified, conceptualised, interrogated: which items are really criterial; which are dispensable; which are more or less important; do some apply to play and other to games, and so on. Such lists in classrooms where I have worked have included rules, competition (and cooperation), winning and losing, points and scoring systems. We will look at these in more detail below.

After this general consideration of the nature of games and play, I will take each of Kress and van Leeuwen's overarching categories in turn, and explore how they can be applied to game-texts.

Representation

There are many reasonably straightforward questions we can encourage students to ask about how games represent the world. How are women represented? Urban life? Technology? Conflict? History? The family?

However, I will concentrate here on how games might represent the world in nartrative form, by constructing sequences which in language would be called transitive. The French narratologist Gerard Genette proposes that the verb is the central category in narrative, since narratives revolve around action (1980). In simple terms – certainly accessible to 12 year-olds – they are at least partly about who does what to whom. In the terminology of systemic-functional linguistics, on which Kress and van Leeuwen partly base their grammar of visual design, this becomes a transitive sequence of Actor, Action, Goal.

Now, English teachers may want students to learn these kinds of structure in language grammar, though they may use other terms (Subject, Verb, Object).They may well look at how time is managed in language, through tense, for example. They may look at how particular kinds of narrative action are represented by particular kinds of lexical choice (how the soldiers in Wilfred Owen's 'Dulce et Decorum Est', for instance, march, stumble, choke, drown). They might look at how point-of-view is represented through the system of *person*: how, for instance, the 'friend' back in England who perpetrates the 'old lie' of 'Dulce et Decorum Est' is addressed in the second person by the poet/soldier/narrator:

[1] I am grateful here to Eric Zimmerman, co-author of Rules of Play (2004), for an entertaining demonstration of the value of noughts and crosses (tic-tac-toe in America) as an exemplar of game rules at a conference in London.

> If you too could walk behind the wagon that we flung him in …
> You would not tell to children ardent for some desperate glory
> The old lie: Dulce et Decorum Est pro patria mori.

What, then, is the equivalent of verbs in game-narratives? In some ways, they look quite similar to our experience of narrative action in older media. In the game of Harry Potter and the Chamber of Secrets, the player (as Harry), *flies* around Hogwarts, *plays* Quidditch, *intrudes* into the Slytherin common-room disguised as one of Malfoy's friends, *enters* the Chamber of Secrets, *fights* and *kills* the Basilisk. These 'verbs', or narrative actions, are however generalised representations of how the player experiences Harry through play. At the game equivalent of sentence level, something rather different is happening. Harry the avatar[1] (the player's representative in the game) is a programmed entity only able to perform six actions – to move forwards, backwards, left or right; to cast spells; or to jump. These actions are related to keyboard strokes in the PC version of the game: arrow keys, left mouse button, and space-bar respectively. We can call these actions *playable actions*.

The values of literary composition, which emphasise rich variety and inventiveness, originality of expression, and a naturalistic modality in representing human behaviour, may seem to collide violently with such restrictive, mechanised constructions of narrative action. However, three points need to be made.

Firstly, these actions are *amplified* by the visual and auditory semiotic. If I press the forward arrow key to move the avatar to the edge of a dark precipice, perhaps triggering in the process a deep chord in a minor key, I will experience this action as something like "teetering dangerously".

Secondly, these actions are elements of play as well as elements of narrative. As such, they can be seen as part of a *restricted language* (Halliday, 1989). So, just as the limited moves of a knight, pawn or bishop in chess contribute to complex and rich forms of play, so the restricted moves manipulable by the player in a computer game can produce skilful play and a rich narrative experience, as any committed player of the *Tomb Raider* series will tell you in relation to Lara's actions of running, climbing, jumping, shimmying and shooting.

Thirdly, the playable actions are complemented by two other kinds of action outside the control of the player. One can be called *existential action*: small programmed actions which show that the character is alive, by keeping them dynamic or investing them with human-like properties – restlessness, boredom, impatience. These include animations which produce small movements of the body or turns of the head, or occasional speech a character is programmed to utter if they have been inactive for a determined period of

[1] The avatar is the player's representative in the game, usually the player-controlled protagonist. The word is derived from Sanskrit, originally signifying the descent of a god to earth in human form.

time. The other is *non-playable actions* which take place outside the play sequences, in scenes known as 'cut-scenes' to gamers, which are effectively short films designed to provide backstory, narrative fills, or instruction to the player. These scenes, since they are simply animated films, do not depend on the restricted language of the playable actions, and are thus unrestricted, and can show any action the designer wishes.

These kinds of complementary actions enrich the semiotic repertoire the text offers the player. We may only have six movements available to us as players – but narratively we experience many more.

Nevertheless, the game apologist may still fail to satisfy the committed student or teacher of literature. After all, all these movements, however varied, are effectively programmed to be produced by a machine. What passes for a character is really a bundle of media data (visual design, animation, wireframe) animated by algorithmic instructions. How can this compare with the richness of literary character, with its psychology, its development through the narrative, its roundedness, its mimetic or referential repleteness in relation to the people of the real world? By comparison with the characters of literature, computer game characters must seem reductive, crude, unconvincing, devoid of aesthetic merit or representational adequacy. Admittedly, I'm making up these arguments, or attributing them to an invented caricature of the literature-loving English teacher. Yet I have encountered arguments like these when presenting games to English teachers or teachers in training.

What might the counter-arguments be? There are several, it seems to me.

The first is made by Marie-Laure Ryan, in an article for the inaugural issue of the game studies journal Game Studies (Ryan, 2001). She points out that some kinds of narrative make good games, while others don't. Those that do are ones with what E M Forster called 'flat' characters, as opposed to 'round'. Ryan argues, then, that games work better with characters like Alice, Sherlock Holmes, Harry Potter and the heroes of fairytale rather than Emma Bovary, Oedipus or Hamlet. The point here is not Forster's point, that flat characters mean inferior narratives; rather that they mean different ones, with different merits, functions, effects.

A related point is made by Janet Murray (1998), who points out that computer game characters resemble the heroes of oral narrative. Walter Ong calls these 'heavy heroes' (2002), and argues that they are characterized by a few simple traits, and by an agonistic mode of action (they solve problems through external physical action rather than through internal psychological processes). Again, the point is not that heavy heroes belong to inferior narratives; just to ones whose functions, cultural provenance and modes of representation are different from those of the European novel or the Renaissance drama (although both also boast respectable lists of heavy heroes too). I mention these two genres deliberately, because they dominate the literary canon to which the sensibility of English teachers is directed, and around which syllabuses and curricula in the Anglophone world are most commonly constructed. In relation to narrative and narrative characters in particular, this seems to me to produce what is really an ideology of

representation. This is rooted in claims for certain 'realisms': a representation of psychology, and a representation of the physical world confined by the rules of naturalism. This ideology made life difficult for genres which did not conform – fantasy and folktale in particular. These narrative forms become, especially in the nineteenth and twentieth century, driven elsewhere, into children's literature and popular fiction – what becomes known dismissively as 'genre' fiction.

What is in danger of being under-represented in the curriculum here is not only the contemporary popular forms of the comicstrip, blockbuster movie and computer game, but also their antecedents in oral narrative: the Norse sagas, the Homeric epics, *Beowulf*, the Robin Hood ballads, the Child ballads, and so on.

It may seem that I've drifted rather from the question of 'grammar' into much broader concerns with genre, literary values, narrative types, cultural histories. The drift is, however, strategic. The humble, functional units of grammatical structure are of no interest to children or English teachers except insofar as they might be culturally-weighted building blocks of larger textual and discursive entities. There is a direct line from the formulaic actions of Harry Potter and Lara Croft to the larger narrative characteristics of their respective computer games. The formulae here are those which determine transitivity, and the part the player takes in this transitivity; and also those which govern what a character is – the bundle of media objects (visual designs, animation cycles, units of recorded speech) held together by algorithms that configure and articulate what we see and experience as movement, dialogue, magic powers, combat, discovery, and so on. If this kind of mechanized characterization seems anathema to us as English teachers reared on the representational ideologies of modern literature, we need to pause and reflect. My argument is that these formulaic grammars, necessarily computable, necessarily configured to respond to the skill, improvisation and quick wits of the players, are not so dissimilar from the Homeric epithet or Old English kenning, or the formulaic representation of action which repeats the details of warrior-death in the Iliad, or of the wielding of a quarter-staff in the Robin Hood ballads.

Interaction

Interaction is the word Kress and van Leeuwen use to indicate how meaning is jointly constructed by texts (and their authors) and readers or spectators. It derives from Halliday's *interpersonal* metafunction, but implies a relation to texts (and more recently screens) as well as other people – a mediated relationship, in other words. Other people use different words. Jay Lemke uses *orientation*, which suggests the way the text is turned to face the audience, as well as the audience's stance towards the text (Lemke, 2002).

This function of grammar can include many things. Amongst the most important features in relation to narrative texts seem to me to be:

- how audiences are positioned in relation to the text in general (Kress and van Leeuwen look, for instance, at the use of horizontal and vertical angle in visual texts, which is a commonplace approach also for media teachers)

- how audiences are located in relation to specific characters, especially the protagonist: what Genette calls *focalization*
- the systems of *mood* and *modality*: is a narrative text offering information, asking a question, or making a demand? How is it making claims for what is credible, authentic, definite or vague, real or fantastic? And how do audiences judge and engage with these claims?

The first of these three has traditionally been thought of, both by English and media teachers, in terms of the idea of address, perhaps. The second invokes older ideas of identification. The third has usually been conceived of through the notion of realism. Such notions were – and still are – victims of the lang-lit fracture. They were and are deployed as ways to think about narrative texts, whether literary or media; but they were disconnected from the study of language structures which operated in another part of the English curriculum, separated out like egg yolk by academic qualifications, curriculum prescriptions and examination syllabuses. What social semiotics offers to do, perhaps, is to remix the omelette.

How, though, do these systems work in computer games? I will consider this question under three sub-headings: how, in games, the functions of representation and interaction become newly articulated; how the literary and filmic notion of focalization can also help explain how the player relates to the protagonist; and how systems of modality might operate in game texts.

Representation becomes interaction

The first point to make is that games make possible an unprecedented relation between the representational function and the interpersonal function. In conventional narratives, the transitive sequence of Actor-Action-Goal is provided by the text: the interactional function of the audience is to observe and interpret. In games, what we mean by interactivity (in its common sense) is that either of the end-terms in this sequence become occupied by the player. We literally become the Actor or Goal. We leap with Lara, cast spells with Harry's wand, manipulate Gandalf's staff, strike with the huge sword of Cloud Strife, the elfin warrior hero of Final Fantasy VII, slash and block as Iorek the armoured bear with the Wii-mote and nunchuk of the Nintendo Wii. Or, on the receiving end of the transitive sequence, we take hit points from Draco Malfoy, lose life force to the Balrog in *Lord of the Rings*, die of spider venom in the forests of the popular online role-playing game, *World of Warcraft*. To say "Gandalf strikes" or "Harry casts" now means something different, partly because the player (in respect of these defined actions) has become the Actor, partly because the material substance through which the action is constituted has changed. It is clearly different from the collection of letters which signifies the action in print. It has more in common with the animated motion that forms the signifier material in moving image texts. But it also includes the programmed properties of the action, triggering quantified consequences such as depletion of life points, increase of score, release of reward objects. And finally it includes the physical action of the player with the interface – the stabbing of keys on the PC keyboard, the urgent use of buttons and joysticks on Playstation consoles, the mimetic waving of the Wii-mote and nunchuk. Are these 'grammatical'? They seem to work in ways analogous

to the qualifiers of verbs in language, adding degrees of urgency, or confidence, or skill. More profoundly, they raise phenomenological questions about the embodiedness of player enagement with the game-text.

Focalization

Focalization is realised through the grammar of language in many ways, as Genette explored in Proust (1980). It was the term Genette proposed to cover, as he said, "who sees" – how our perceptions of the narrative are determined by our location in relation to particular characters, and especially the protagonist. Film theorists have gone on to consider how focalization works through the grammar of the moving image through conventions such as shot distance, voiceover narrative, camera position, frequency of representation of the focalized character. These and other elements of film grammar locate us closer to one character than another, determine whose eyes we 'see' through, give us privileged access to that character's thoughts, beliefs and motives, establish, or at least invite, our sympathy, make possible our empathy.

How does this work in games? Perhaps the most obvious thing is that it is in some ways a more fixed relation. The player-character, or avatar, is unambiguously the representative of the player in the game, like the incarnation of a divinity which the Sanskrit origin of *avatar* signified. We are close to the protagonist because, at least to the degree that we perform the playable actions, we *are* the character. This degree of focalization surpasses anything that was possible in older narrative forms, with the possible exception of theatre, in which, as Hamlet succinctly observed, we perform the actions, speech and lamentation of Hecuba. Indeed, as some game theorists have observed, playing a narrative game does resemble playing a character in a play, or perhaps the invasion of the stage by the audience (Laurel, 1991; Murray, 1998).

However, as with other kinds of focalization, distance can be established as well as proximity. We may operate some of the character's actions, but, as observed above, not all of them. We play as amnesiacs in a perpetual dramatic present tense – any representation of actions before the moment of the game narrative have to be supplied to us, in cut scenes, as flashbacks, in the same way that they would be in literature of film. We are also distanced by our perceptual connection with the character. Game players have a clear conception of first and third person play: first person play means looking through a character's eyes, seeing only their gunhand in the case of first-person shooters; third person play often means, in 3-D adventure games, being permanently positioned behind and just above the character. Both positions are, perhaps, closer to variations on a first-person narrative in literature or film: there is nothing, in the player-avatar relationship, that is close to a third-person literary narrative. So we are always attached to our avatars by invisible umbilical cords – but by the same token at one remove from them, especially in the third-person view, where we observe them from a vantage-point.

Students are able to conceptualise these relations, and to do so involves not a little intellectual challenge. Their talk in one of our research interviews about how they relate to, in this case, Harry Potter in the second game adaptation, shows how they are able to articulate their engagement with this aspect of game-grammar. It also shows that the

structures of the game text only offer possible meanings,The game-text can only offer us a system of meaning-potential, however (Halliday, 1989). Some children in these research interviews did not feel as if they 'were' Harry; merely that they were controlling him from above:

> ANNIE: You're in the third person, you're watching Harry move around, so you're not looking at it from the first person, so you're not really being Harry Potter, you're just watching him and controlling what he's doing.

By contrast, one girl who was a committed Harry Potter fan felt quite different:

> GEMMA: You're controlling it, really, and it's actually like you're there, and you're the one that's doing it, you're Harry Potter.

Her much more intense experience of the text's focalizing devices derived from her dedication to the whole Potter phenomenon: the drawings of Harry on her bedroom wall, the boardgame she had made of the third novel, the improvised dramas she played out with two friends in the school playground. Her enthusiastic immersion in the figure of the avatar extended, naturally, to a willing acceptance of the claims for credibility and authenticity made by the whole game-text: the aspect of game-grammar indicated by the idea of modality, the subject of the next sub-section.

Modality

Social semiotics provides a way to think about how the text's claim to credibility is negotiated through the judgments of its audience, who may choose to accept or reject such claims. These systems of modality are various, and construct believability in different ways. They may build a credibility rooted in naturalistic representation, or, conversely, in a fantasy modality; they may assert the reality of a documentary take on the world or a comicstrip take; they may root their credibility in fidelity to the conventions of a particular genre, appealing to its fans to distinguish between the real thing and pale imitations.

In the case of games, it can be said that at least two systems of modality are working in parallel at any given time. One relates (at least in narrative-styled games) to the narrative system; the other to the ludic system. The narrative modality is similar to its counterpart in other narrative media, with the exception that the player's attachment to the avatar weights the modality in certain ways. The designers of the game will certainly hope that the player-avatar relation raises modality, a hope evident in exhortations on the box-cover of the second Harry Potter game adaptation to "Be Harry Potter and unlock the mystery at the heart of the Chamber of Secrets!"

How do players judge narrative modality? Examples identified in research include players who develop fan work online, in which they embellish the story of the game, writing 'spoilers' which provide satisfying endings, or fanfiction which fills in the

complex backstories of characters and other narrative events. At the finer 'grammatical' level, they may make judgments about the credibility of the graphic design and 3-D experience, analogous to ways in which readers of literature might respond to passages of descriptive prose. This reviewer of Harry Potter and the Chamber of Secrets, for instance, gives an enthusiastic endorsement of the visual style of the game, corresponding to what Kress and van Leeuwen call 'naturalistic modality'. The high modality judgment is represented not only in the emphatic adjectives, but through emphatic punctuation and typographic choices:

> Graphics: TERRIFIC! The art direction on this project is EXCELLENT! This is a visually stunning game!
>
> (www.videogamereview.com)

Meanwhile, for another reviewer, the game is found to be effective in its provision of a convincing immersive experience, in a modality judgment that corresponds to what Kress and van Leeuwen call a 'sensory modality':

> Graphics were better than i imagined. When you fly your broom around hogwarts the detail is very crisp and clear. Down to the water splashing in your face when flying close to the lake.
>
> (www.videogamereview.com)

By contrast, the ludic modality is built through the game system, and the experiences it offers: meeting challenges that are achievable but sufficiently difficult; collecting objects, scoring points, fighting enemies, progressing towards a win-state but in constant danger of triggering a lose-state, managing quantified resources to meet the challenges. It is clear that players can switch between narrative (or representational) modalities and ludic modalities without any sense of contradiction. So, in the online role-playing game *World of Warcraft*, as in any game of this genre, players toggle between screens which represent their avatar in colourfully-realised scenes of fantasy adventure and screens which represent resources such as clothing, weapons, magic spells, health points, currency, membership of groups and other social and political affiliations, and so on, as simple icons, numbers, written descriptions, charts, inventory boxes. This kind of modality can be said to correspond to what Kress and van Leeuwen call a 'technological modality' – the kind of claim to veracity made in visual media by charts, maps, technical diagrams.

Not only can players switch between this technological modality and the naturalist modalities of the game – they can also make different modality judgments. So the reviewer quoted above, who was so impressed by the terrific graphics of the Harry Potter game, made a quite different judgment about the ludic modality:

> Gameplay: The gameplay is BORRRRRRING. It's a lot like watching paint dry.
>
> Walk around .... LOAD ..... walk around some more ..... LOAD ..... collects some
>
> frog, beans or balloons ... LOAD ..... Solve a puzzle ..... walk around again ..... get
>
> the picture?

The representation of low modality here contrasts strikingly with this reviewer's enthusiastic endorsement of the game's graphic quality: tedium is represented orthographically and in the punctuation, dragging out words and intervals between clauses to represent the unbearable pauses while levels load.

The focus of this chapter so far has been on how players *experience* games, and on how teachers and students might think critically about them, conceptualise them. The next section will address the compositional function of game-grammar by considering how children might *create* their own games, based on our research with schools and game-authoring software.

Composition

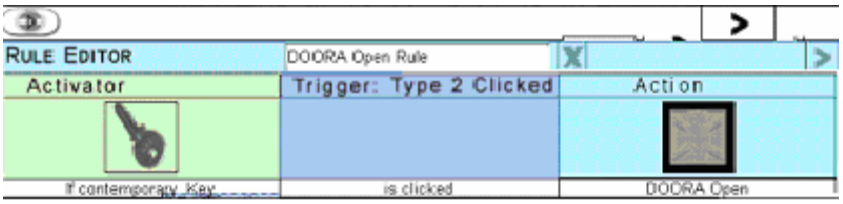
The grammars of game-composition are hybrid and multimodal. They range from the grammar of coding in the design of the game's skeleton, the game engine, to the grammars of visual design in the 3-D modelling of environments and characters, and moving image design in the animation of characters and objects. They extend to the grammar of speech, whether represented as spoken or written language; and music composition, an important design specialism in the games industry, with its own dedicated fan following in the case of some game franchises.

In my field, media education, we have concentrated on a few key principles of game design when working with students in schools. I will mention only two here, because they seem fundamental to me; and also because they have interesting implications for the (related) teaching of grammar and narrative in the literacy/literature curriculum.

The first concept is *rule*. This is well-known as a basic building block of game design (eg Juul, 2003; Salen and Zimmerman, 2004). I have considered the notion of rule above in relation to simple games like noughts and crosses, as well as complex games like chess.

When we developed an authoring tool for children to use to design their own games, we built into it a unit we called the 'rule editor' (Fig 1).

Figure 1
Rule Editor from the Missionmaker game-authoring software



This allows users to determine the conditions under which an event occurs: in this example, *if contemporary key / is clicked / DOOR A opens*.

This kind of rule-building is at the core of game-grammar. The narrative of games is entirely conditional: nothing can happen, at least nothing in the ludic sense, without some choice being made by the player: to turn left or right, to enter a room or not, to pick up a gun or a magic potion, to be a mage or a Night-Elf, to shop or to fight. At the level of this kind of rule, conditionality is evident in the narrative effect (the door will only open if the key is clicked), in the programming (the key and the door must both be connected to the code that specifies the *if/then* or *when/then* sequence); and in the language grammar, which is always an if-clause.

This can teach us – and students, if we choose to make it explicit – something about game-design, something about the language of computer programming, something about language grammar, and something about the grammar of narrative. In fact, in the research project in which this software was developed, we chose to focus with the students on the cultural aspects of rules, asking them to think of examples of rules and why rules are necessary or important or enjoyable.

Students understood that many games they were familiar with used rules – but had often not applied this idea to computer games. One boy's list made it clear that he was able to conceive of rules across different kinds of game: tennis, pool, pontoon, cricket, and the World War 2-themed computer game *Call of Duty*. He was also able to consider the cultural significance of rules, and how they can provide pleasure:

> The reason games have to have rules is if there wasn't rules in a game you wouldn't have any challenges or boundaries, limits too, and that would spoil the fun and cause you not to have anything to complete.

The other element of ludic 'grammar' we focused on explicitly was *economies*: quantified resources. In fact, everything in a computer game is quantified in some way, but our interest here was in those resources available for the player to manage: health points, hunger, time, the weight of objects, quantity of ammunition, vulnerability levels of player and non-player characters – all resources which, in the software we used in this project, can be determined by the young game designers.

When we asked them to think about economies, they were able both to define them and to give examples:

> ECONOMIES are the objects that get used through the game. They can be collected or deducted. They are the base of the game, they help give the player some challenges. An example of some economies are: the time left on the game. How much oxygen you have left.

This definition gives a good sense of the writer's conception of the positive and negative trajectories of economies, and of their numerical nature ("deducted").

Unlike the notions of transitivity, person or modality referred to earlier, the concepts of rule and economy have no direct counterpart in language grammar, and may seem alien to those most comfortable with the meaning systems of language, or even the broader semiotic systems of 'older' media such as film. However, there are profound connections. As we have seen, rules relate to the conditionality of games, part of their structures of mood; and in turn, this produces a quite different kind of narrative, on based on options and choices at every turn. So, rather than leave students with the idea that ludic grammar was something divorced from narrative grammar, we asked them for examples of stories they knew which contained rules and economies. An example given by a boy of a 'rule' in narrative was that Frodo's sword, Sting, in *The Lord of the Rings*, glows blue when orcs are near; while a girl suggested *Hansel and Gretel* for an example of a narrative economy: the breadcrumbs the children drop to find their way out of the forest.

Naturally, an important aspect of the composition of the children's games was their coherence, both in narrative and ludic terms. We found examples of games with strong ludic coherence and weak narrative coherence – where objects were strongly connected by rules to make a satisfying game, but had no narrative significance. An example was an object in an Egyptian-themes game which effectively triggered an event, programmed by the student to do so, but was incoherent in the game's representational system: a safety-pin. Conversely, we found games with strong narrative coherence but weak ludic coherence, such as a Victorian-themed game with a clear plot about the murder of a lady and the revenge taken by her ghost; but a fragmented sequence of ludic challenges with no overall structure or development.

In relation to multimodal texts in general, Jay Lemke emphasises the importance of *textual cohesion* as a feature of their organisation or composition, and this was clearly the case in these students' games. There were simple links between cause and effect in objects juxtaposed in the game space: a player's key would open a safe, for instance. These kinds of coherence resembled conjunctive cohesion in language. In more ambitious designs, objects quite far removed from each other would refer back and forwards across the time and space of the game, resembling more closely referential ties in language. The strength or weakness of these cohesive ties were part of what made the games robust and successful or rambling and unsatisfying.

An example can be seen in Figure 2.

This is part of a level of a game made by two Year 8 girls (12-13). In it, the player finds a gun, but then has to seek elsewhere for the ammunition, which the girls have partially hidden in a lake – it can be seen towards the bottom right-hand corner of the image on their design screen. There is, then, a referential link between ammo and gun; though, unlike such a link in a conventional narrative, the establishment of the link here has to be made by the player, so rather than a fixed semantic pair, it can be seen as a provisional semantic triad – two objects articulated through a player action (pick up the ammo).

The cohesion between gun and ammo is then tied to another player action – firing the gun – which is in turn tied to the goal of this action, a stormtrooper who can be vaguely seen behind the translucent column. The column is a 'trigger volume', which the girls have programmed to trigger the stormtrooper to 'seek and destroy the player' if the player should enter the space defined by this shape.

The tight cohesion of this sequence, in which objects, actions and participants are articulated within processes of narrative causality, is evidence of a well-designed game. At the same time, it can be seen as evidence of two kinds of motivation on the part of these young designers. One is an educational motivation – a desire to follow the processes which have been modelled by the teacher (and to some extent 'taught' by the software). The other is a broader interest in the pleasures of First-Person Shooter games – the awareness of a need for narrative suspense, for a difficult but achievable goal, for a clear demarcation of conditions of winning and losing. These cultural properties are achieved in part by the closely-woven cohesion of the sequence, which results in the

player searching for the ammo, trying to avoid the stormtrooper, just visible through the gate, and trying to avoid falling into the lake (which would end the game).

Conclusion: Game-Grammar And Game-Literacy

I have tried to show, then, how a social semiotic model of 'grammar' could be applied to computer games, and how it could make sense of the relationship between their narrative and ludic functions.

However, such an analytical framework is pointless as a formal exercise, and a social semiotic approach would always privilege the cultural and social functions of the text in question here, and the ways the player engages with it. To do this, it seems necessary to me to locate any such textual approach within the sort of structure which in Cultural Studies is often referred to as the 'circuit of culture' (eg Du Gay et al, 1996). This model imagines a cyclical relation between textual production and audience engagement, in which the regime of production and its economic and political context feeds into the regime of consumption and interpretation, with its various functions (the acquisition of cultural capital; the building of identity; the growth of literacy; the experience of pleasure; the exercise of cultural taste and affiliation to particular communities of taste and interpretation). This movement from production to consumption, from text to reader, involves other processes, such as regulation – how various interventions might come between, in this case, a game and its player, such as age-classification by national regulatory bodies (games are regulated partly by the BBFC in the UK, partly by PEGI, the pan-European self-regulatory system devised by the industry); or constraints imposed (or not) by parents; or the common prohibition of gaming in school computer labs.

Finally, the processes of play, interpretation, distinction and consumption feed into the appropriation by players of resources provided by the game-texts, in the production of their own texts. These might be fan texts such as fan fiction, walkthroughs, spoilers, fan art (cf Jenkins, 1992, Burn and Schott, 2004); or they might be new games such as the ones made by the children in our project, which use cultural resources such as genre, narrative types, play conventions, and the visual and programming resources of the software. In any of these cases, the grammar of the game-text corresponds to the grammars of play, fanwork and player design: the same narrative structures, representational structures, interactional functions and compositional processes are at work. The assumption of the circuit of culture is that these new texts feed back in some way into the industry, and the next cycle of production. There are plenty of examples of how this might happen in game culture: player experts who become sponsored b the industry; 'modders' who modify the original game texts in ways which the industry recognizes and capitalises on; fan communities whose desires are picked up by the company and may influence subsequent designs. However, the articulation between audience production and the industry is necessarily fragmentary, highly selective, and based in, as well as reproductive of, a starkly unequal power relation. This is not to bemoan the grip of global corporatism (though this can have stifling and domineering effects, not least on smaller 'independent' elements of the industry itself), or to overplay the passivity of player-audiences. It is, however, to warn against over-enthusiastic

celebration of the power of players, consumers and – in the case of education – the agency of children. Such agency certainly exists, often in dramatic and spectacular ways, and it is the job of teachers to nurture it; but it does not abolish or neutralise the power of media institutions.

It may seem again that my argument has drifted away from the question of grammar and literacy. However, my concern here is that the formal properties of games as texts must not be dislocated from the cultural cycle in which their social meanings are offered, constructed, challenged, remade. As with any 'grammar' or 'literacy', to conceive of it, or to explore it with students in school, without proper attention to its social and cultural functions is pointless, and invites all the old accusations of reductiveness, mechanistic formalism, decontextualised exercises and so on. Game 'grammar' can connect with the semiotic systems of language, film and other media conventionally bundled within English curricula at three levels: the micro-systems of syntagmatic structure, the macro-systems of broader discursive patterns, in particular those of narrative and argument; and the contextual structures of cultural function and use. All three are necessary if teachers are to gain any useful sense of how students' experience of games, beyond and within the classroom, can enrich and extend their understanding of the making of meaning and its purpose.

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