

# Agency and the "Emotion Machine"

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**Abstract.** Understanding the role of agency is crucial for the creation of interactive fiction. This paper considers some dramatic and literary theories that explicitly or implicitly contain a notion of agency, and examines how these varying notions inform the theory and practice of interactive narrative and drama.

## 1 Introduction

This paper considers concepts of agency; the working of agency; and the role of emotion in the constitution of agency; with respect to interactive fiction. Its context is the work of researchers who have looked to dramatic and literary theory for inspiration and clues about the design of a computer-based and participatory literary form. The paper focuses on dramatic imperatives in the creation of an interactive story form rather than the software structures that could implement them. The next three sections briefly investigate concepts of agency with relation to dramatic and literary theories identified with Aristotle, Brecht, and Barthes. After a brief discussion of the intersection of manipulation and interaction, I discuss the role of emotion in the workings of agency. The last section discusses a dramatic strategy suggested by my understanding of the role of agency in interactive fiction.

## 2 Interactive Story and Aristotle

Brenda Laurel used Aristotelian dramatic theory to conceptualize both an approach to interactive fiction and a generalized theory of interface design [11]. Janet Murray conceptualized agency as the user's sense that she can act in a virtual environment and that her actions are effective [16]. Michael Mateas proposed a theoretical basis for both the dramatic and software design of interactive drama that built on Laurel's interpretation of Aristotle, enhanced by Janet Murray's conceptualization of agency [13].

The Aristotelean elements that Laurel and Mateas found useful include: telling a story through action rather than description; a focus on strategies that intensify emotion; and an insistence on the clear causal relation of all elements to a controlling idea. They refer to Aristotle's layered structure of formal and material causation as a key to understanding the top down work of the author in creating a dramatic experience and the bottom up work of the spectator in interpreting it. In this view the author creates a chain of formal causation starting with a controlling idea; the idea demands a certain plot to express it; which

needs certain characters to embody it; with specific personalities (thoughts); speaking particular lines; creating certain patterns (of actions, of behavior, of rising tension); which create the spectacle. The audience/spectator starts at the bottom, building up a chain of causation from the material that is presented to her; viewing the spectacle; detecting the patterns in it; interpreting the speeches; hypothesizing about the thought processes behind the speech; gradually understanding the characters; "getting" the plot until; the Ah ha! moment when the controlling idea becomes clear. Working from the top down each layer is the formal cause of the layer beneath, working from the bottom up, each layer is the material cause of the layer above.

Mateas inserts the human participant, the agent, at the same level as the other characters. He argues that the "elements below the level of character provide the player with the material resources (causes) for taking action." [13] p 53. The formal causes above character, give the user motivation to act in certain ways that fit in with the plot the author has conceived. Mateas argues that balance between the two will lead to an effective sense of agency. Mateas's identification of elements that afford action and elements that afford motivation, is extremely useful for interactive fiction. It also seems correct that a balance between them is an important element in giving the user a sense of agency as defined by Murray. Another important element is gathering feedback from the user, so that the system can be appropriately responsive. Magy Seif El-Nasr, who also builds an interactive story system using Aristotelian notions of drama, incorporates feedback from the user's actions into a user model [6]. The user's behavior is mapped to a vector of possible user-types. The plot is changed according to the system's assessment of the type of user it confronts.

### **3 Interactive Story and Brecht**

Although Aristotle's ideas have pre-eminently useful for some interactive drama researchers, others suggest that staying within an Aristotelean framework may unnecessarily limit the kind of agency that can emerge [8]. The basis of much of this criticism is the Aristotelean concept of catharsis; drama designed to build up emotional tension that sweeps the spectators along with it. Advocates argue that this allows the audience to identify and play with powerful and dangerous emotions in a safe place. Critics reply that the emotional drama is invariably connected to an underlying ideological message which is accepted uncritically by the entranced audience. The drama is propaganda. In theory and practice Brecht opposed cathartic drama with the alienation effect - developing ways for actors to act, and dramatists to write, that continually warn the audience to keep a distance from the emotions of the play and to retain an awareness of it as an (semiotic) artifact. Implicit in the theatrical traditions stemming from Aristotle and (much later) from Brecht, are very different concepts of the audience and by extension of agency. The Aristotelean spectator is to be moved, immersed, caught up in the drama, her agency taken away. In contrast the Brecht audience member is to be stimulated; made conscious and wary of both medium and

message; encouraged to be a thinking agent.

Kjolner and Lehmann believe that a theatrical tradition that embraces Brecht and focuses on participation and improvisation is a much richer source of inspiration for interactive fiction and drama than Aristotle [10]. They argue that Laurel dismissed improvisation as a strategy for interactive fiction as part of her criticism of the inflated claims being made for hypertext that suggested that completely non-linear stories with unlimited freedom of choice for the user were arriving as the next literary form. She argued that an absolute freedom to do anything would not be dramatic, and it would put unreasonable demands on a user to improvise, when improvisation is a tremendously difficult skill. She proposed that the user's actions must be constrained by narrative logic. Kjolner and Lehmann are equally dismissive of inflated claims for "freedom" in an interactive story world. However, they argue that the kind of constraints Laurel envisaged – causal, narrative constraints that grew out of her engagement with Aristotle – are not the only kind possible. They suggest that supported improvisation can provide interactive story with a different and useful set of constraints. They say that the rules of such improvisation are taken from the rules of social interaction, and that an inexperienced improviser can be provided with a set of constraints that enables them to feel both free and enabled enough to act.

I am persuaded by the potential of Aristotelean methods to immerse the user in an interactive scenario, but I also find the idea of designing interactive story as a supported improvisation compelling. The idea of constraining agency with a network of social and psychological rules and customs is different but not incompatible with the idea of constraining agency through the layers of material causation confronting the spectator. Both could be harnessed to support an improvisation. We started with Janet Murray's definition of agency: the user's ability to act, and her perception that her actions are effective. As we look at the implications of agency in the traditions of Brecht and Aristotle, this definition already begins to seem a little narrow. Before considering how best we might support agency for interactive drama, it therefore seems appropriate to examine the concept of agency as it has been elaborated by post modern theorists.

## 4 Interactive Story and Barthes

Above a distinction emerged between dramatic forms that suppose a rather passive observer or spectator and those that encourage a more active participant, with a certain assumption that only the latter can be considered an agent. However, semioticians have also identified agency in a reader or spectator who does not act in any external sense [5], and interactive researchers have considered this understanding of agency to be crucial to the creation of interactive fiction [7]. The reader or spectator is to be considered an agent because it is the work she does that creates meaning. A text or spectacle is presented to her, but she has to decode it in order to understand it.

Critics following Lacan also argue that the reader/spectator is not separate from the text she decodes, but suggest that the process of decoding the text

calls into being the kind of agent that the text demands [12]. Lacanian theory suggests that the child can only enter (acquire) language by acceding to the rules implicit in language, the rules of family relationships, of gender. So the process by which agency is gained, configures that agency. The theory holds not just for written and spoken languages but for all sign systems, including visual and audio signs. Judith Williamson describes the process in the self-referential realm of advertising:

”... we create the meaning of a product in an advertisement; ... we take meaning in from the product; ... we are created by the advertisement; ... we create ourselves in the advertisement.” [21]

The job of the advertisement is to start a dialectical process with the viewer resulting in the creation/calling into being of an agent who will buy the product. The idea that we are configured and constrained by our activities, makes particular sense in the world of software, games or interactive fiction - the more we understand, the more we figure out the rules, the further we can proceed, the more we have been configured to work within the system. However, this semiotic, psychological discourse suggests that the roots of the process are very deep; that identity and agency are one and the same - only by acting do we come into being, and our being is always and already limited and shaped.

An understanding of this connection between identity/agency and semiotic environment, can also lead to the conclusion that identity/agency is mutable. Stone and Turkle have examined cyber-space as an arena rich in possibilities for playing with identity - individuals have created entirely different selves there [20]. Their work suggests that identity and agency are not atemporal, essential qualities but grow out of specific situations. Kjolner and Lehmann also note how various disciplines, sociology amongst them, began to use theatrical metaphors to explain human interaction [10]. So the word ”role” is commonly used to explain this kind of situated agency or identity. The idea that we can develop a particular identity/agency as we decode a particular situation, suggests how a supported improvisation might work internally rather than externally. Kjolner and Lehmann stress, however, that although they may both be situational, there is a difference between fiction and real-life interaction; fictional and real-life roles, identities, and agencies. Although I believe it is impossible to draw a hard and fast line between real life and fantasy life for human beings. I nevertheless believe that playing and pretending, as we commonly understand them, exist. We can (most of us, most of the time) give ourselves over to Aristotelean catharsis; allow a second identity to emerge on the internet; or take part in role playing games; without the complete de-[con]-struction of our workaday selves.

Jane McGonigal identifies how users very actively work to sustain belief in the pervasive games she organizes: they create explanations that fit within the game logic to paper over any cracks that appear [14]. She calls this ”performing belief,” and this sense of performing in a fictive environment is vital – otherwise we are in the realm of madness and delusion not fiction. So I would also argue that users ”perform agency” in interactive fiction. Post-modern consumers of interactive experience have to pretend to be complicit with the mechanisms in

order for those mechanisms to work - they have to perform themselves as agents. They relate to mediated experiences on two distinct levels; both immersed in the spectacle and aware of the mechanisms of the spectacle [1]. The idea that we are performing agency is important because it assures us that the user has a choice; she has to consent to perform for meaning to emerge from an interactive scenario. If we are assured of the difference between fiction and reality, we may be less scared of the manipulative aspects of interactive fiction, because it is the contention of the next two sections that interactive fiction is and has to be profoundly manipulative.

## 5 Manipulation and Interaction

We have looked at the spectator/user as an agent in the production of fiction. Now let us turn to the work of the author or authoring system. Nath writes: "Producing a narrative is ... an act of directly (and successively) manipulating narrative elements to indirectly (and successively) manipulate audience knowledge, feeling and action ..." [17]

If we take a simple view of agency, such manipulation seems to pre-suppose a compliant and passive spectator, swept up in catharsis. Our more complex view of agency suggests that the spectator/user has, in fact, to be active in the creation of meaning and therefore of her own response. On the other hand, our more complex view of agency also presupposes that it is the author's work to create in the position of spectator/user the kind of agent she wants [2]. Seen from this angle, it is as manipulative to maneuver the audience into some kind of Brechtian self-awareness and consciousness of the artifacts of manipulation, as to hide those artifacts, to immerse the audience, and to set up Aristotelean cathartic experiences.

The role of the author is to set up the structures of constraint that allow meaning and agency to emerge at all. These can be contextual constraints; the narrative logic created by a chain of formal causation; the norms of social interaction; the rules of any game. The author has to provide these constraints so that a user watching or interacting with the spectacle can decode and interpret events and act. It is ridiculous to try to abrogate the author's responsibility for exacting a specific performance of agency from the user - that's what she's paid for. Within this framework, interaction works by trapping the user, so that her actions implicate her even more strongly in the ongoing semiotic process. The idea of creating a trap in fiction is an old one; Barthes uses the term "snare" to talk about the process of setting the user's mind to work along a certain, desired, path of signification [5] p32. I will co-opt this term, and give an example of a snare working interactively in the art installation *Items 1-2000*, by Paul Vanouse.

Video monitors are placed around an object that suggests a surgical table or a coffin. The table is covered with thick wax with the life-size imprint of a man in it. A male performer can lie in the imprint. A pane of glass is set above the table with bar codes strips aligned with each of the major organs. A bar code scanner

lies on the glass. The snare is set. If the viewer swipes the scanner across the bar codes, the video moves through the data set of the Visible Human Project until it reaches the image which corresponds to that organ. Entranced and made curious by technology we act, and our action ties us into an economy that executes a man, cuts him up into hundreds of fine slices and photographs each slice. Interaction leads to an Ah Ha! moment that says, "I did this. This is about me, my curiosity, my ghoulishness, my scientific inquiry, my medical establishment, my society." I consider this a completely successful and Brechtian snaring of an agent: betrayed by her own action into thought, and awareness; aware also of the literal manipulation and its metaphorical reverberations. "I manipulate the scanner. I am manipulated by this installation. My society manipulated the prisoner who donated this body." I believe that interactive fiction authors need to set up snares like these. Snares established by formal constraints but which depend on the actions of the user. The author has to have a good sense of what she expects the snare to accomplish, how and why she is setting it, what kind of agent it is configuring.

In this section and the last I have suggested that a notion of agency that assumes that it depends on free choice and an absence of manipulation is not only to misunderstand but to make impossible the working of agency in a fictional context. Instead I have suggested that the user has to actively "perform" agency within interactive fiction, colluding with and decoding the form in order to co-create the meaning. The interactive fiction author may still use Aristotelean methods to move and motivate the user, but must understand that the user herself is far closer to a Brechtian creation; always, already alienated; simultaneously or sequentially aware and hiding her awareness of her own co-option and collusion with the interaction. This view of agency should make us less worried about the role of the author which is to build interactive snares for the user, and simply regard this process of constraining and manipulating as the sine qua non of this form. Before examining how snares can work in an interactive fiction context, I want to examine the role of emotion with respect to the manipulative functions of fiction and the construction of agency.

## 6 Agency and the "Emotion Machine"

Emotion has a driving role in the realm of fiction. Although games, puzzles, and even some detective stories can focus on cerebral manipulation, fiction and drama must manipulate emotions. We must therefore examine what the role of emotion is, and how it informs the process of authoring a user's performance of agency. Ed Tan described films as "emotion machines." Bernard Perron extends Tan's work on emotion to video games in a way that is very informative for interactive fiction. Perron identifies three kinds of emotion: fiction emotion, artifact emotion and gameplay emotion [18].

## 6.1 Fiction Emotion

Perron suggests that authors of films and games are superb common sense cognitive psychologists, able to set up scenarios that stimulate emotion, and sequences that create emotional roller-coasters. Of course they use tried and true Aristotelean methods of intensification, immersion, catharsis, and a narrative logic that controls pacing and surprises. They also work with psychological, behavioral, and social rules, patterns, and interactions; using them as catalysts for the characters; depending on the viewer or player's ability to decode them and either empathize with the feelings they evoke or react emotionally in the first person. In film, fiction emotions are empathetic, and often evoked by reaction shots. Perron points out that in games players are represented by avatars, but we don't tend to see reaction shots of the avatar. Instead the player's own emotions are stimulated by the visuals, the sound effects, the music. In supported improvisations, other characters simulate emotions and emotional patterns, in order to stimulate emotions in the improviser. Experiments treating phobias in virtual reality have shown that simulations with both contextual, audio-video, and social cues can be used to evoke strong emotional responses in a user [15, 19].

## 6.2 Artifact Emotion

Artifact emotion relates to the enjoyment of seeing how well some effect is created - it is the glimpse of the intelligence behind the spectacle. In a fictional context we may have time to enjoy the light effect glinting off an attacker's sword, something we might be unlikely to focus on during a real attack. In the Aristotelean tradition it could be the joy of emerging from a cathartic experience and seeing how well it supported the controlling idea. In Brechtian terms it could be the awareness of how carefully we are being shown that this is an artifact; an appreciation of the mechanism that produce this awareness. For example an appreciation of how carefully Vanouse laid his snare.

## 6.3 Game-Play Emotion

In his discussion of game-play emotions, Perron refers to the work of psychologist Nico Frijda who describes emotions as action tendencies [9]. This implies that if an interactive environment evokes a certain emotion, the user will be motivated to act in a certain way. Looking specifically at games, Perron discusses how the same scenario may evoke different emotions in players with different skill levels, who therefore act differently. One may feel doomed confronted by a fierce monster because he knows he will lose and therefore try to run away. Another may feel triumphant, sure of his ability to win, and attack confidently. The concept of skill as a determining factor in the evocation of emotion is not necessarily applicable to interactive fiction. However the idea that it is the emotion that determines the action is vitally important. It implies that the job of the interactive fiction author is to stimulate emotions with a certain calculation about the kind of action that may result. The author should be creating emotional snares

that spur the user to action. Agency and action are constrained by an emotional logic.

## **7 The play's the thing wherein I'll catch the conscience of the king.**

Interactive fiction should be conceived of as a series of snares for the user; snares that manipulate the user's actions by manipulating the user's emotions [4]. Providing a series of self-referential scenes that slowly reveal information and surprises, forming emotional highs and lows and raising tension, is a staple of drama. This process can be seen as luring the user along an emotional path, a psychological journey. If the journey is interactive, it is not enough to set up the conditions that will evoke the emotions, but we must provide actions that suit that emotional scenario. Providing actions is also not enough, but the actions must be specifically designed to reveal the state of mind of the user. The dramatic progression and success of the interactive drama depend on a process of feedback and interpretation of the user, so that the world and the characters in the world are appropriately responsive. The snare must be baited by the author, activated by the user, and checked by the author; and the results then used to influence future snares. The concepts discussed in the section on agency and the emotion machine are useful as we think about how the snare is baited, activated and checked. In the following sections I use examples from my own work creating virtual reality drama for immersive CAVE-like VR systems[3].

### **7.1 Baiting the Snare**

The bait is the emotional stimulus plus a possible action(s) dangled in front of the user, inviting her to the next step of performed agency. The author relies mainly on fiction emotion for bait, setting up a constraining narrative context and/or using intelligent agents to establish a constraining social context. For example in my immersive VR interactive fiction, *The Thing Growing*, a social/emotional context is established in which a creature the user releases from a box, proclaims its love for the user, and invites her to dance. Common sense psychology tell us that humans are very apt to physically mimic the movements of other humans, that dancing signifies intimacy, that some people are awkward with their bodies. The snare is set.

### **7.2 Activating the Snare**

The action or actions must be deliberately designed to fit in seamlessly and logically with the narrative and emotional context; to be checkable; to reveal as much as possible about the user. Activating the snare depends on fiction emotion and artifact emotion. The user/agent must understand the signs accurately, and allow her emotions to be stimulated. She must decode the affordances, assess her options, and commit herself to the performance of an action that follows

from her emotional state. Continuing the example above, the user understands the invitation to dance and reacts emotionally. She must also understand how she can act - in the case of this immersive VR project she must understand that her body is tracked and she is expected to use it. Her action will stem from her emotion, but a variety of emotions may be stimulated. Some users, rather liking the chirpy creature who is in front of them, perhaps flattered by the declaration of love, feel happy and co-operative. They dance. Other users may like the creature but dislike dancing, they do not. Still others, may already have decided to dislike or distrust the creature. They also refuse to dance.

### **7.3 Checking the Snare**

The snare must be designed so that when we check it we learn as much as possible about the user. Checking the snare depends first on hardware. In the case of the VR example I am using, the user is attached to a tracking system, and has a 3D joystick to move around the virtual environment. Data from the tracking system can be used to assess the movement of the user's hands and head. Data from the joystick can be used to assess the user's position in the world and relative to the creature she is with. We backchain from the data we receive to the action that has caused it, to the probable emotional state of the user. So, if the tracking sensors move in a particular way, we understand that the user is dancing, we interpret that to mean that the user likes the creature, is happy and co-operative. Other feedback data indicates the user has turned away from the creature without dancing. Either the user doesn't like dancing or doesn't like the creature.

### **7.4 Building Drama with Snares**

Although Vanouse's interactive installation shows that one snare by itself can be powerful and set up many reverberating connotations; one snare is not likely to make interesting drama. For interactive fiction snares only become meaningful when they are combined. The knowledge gained about the user from one snare is used in selecting others, so that the system responds to the user, maybe surprising her by its response, heading her off, herding her to the next snare, the next check point. This does not have to be extremely complex a simple feedback loop of snare and check can be established.

Returning to our example: the creature responds to a user who is inclined to dance by praising her, teaching her a new dance step, and again checking the user's action. Dancing obediently the user learns to expect praise - thus a new snare is set - one specifically for this compliant user. Because over time the creature becomes pickier, criticizing the user's performance. The new snare relies for its emotional impact on two different assumptions about how people work psychologically. First there is a tendency for people to become self-conscious physically if they are criticized, which is heightened because the user is expecting praise. Second some people can be hooked into a psycho-dynamic of trying to please the other in a relationship, to seek out affirmation from the other. In either

case a combination of snares leads the user to become unbalanced, unsure, maybe anxious to please, maybe annoyed. If the user continues through several check points trying to dance we assume the former, if they stop dancing we assume the latter. Further snares await her response.

Although the snare is designed to evoke an emotional response which should lead to an action, the author cannot expect to be able to cajole the same performance of agency out of each user. The authorial system must be able to handle a variety of responses. However, our experience building this kind of supported improvised drama with snare-like structures suggests that users tend to fall into patterns of response. Therefore, a strategy of anticipating responses using a common sense understanding of psychology to predict them, and also iteratively testing and refining the snares in order to add necessary responses can result in a drama that works – for some of the people some of the time. Others will not consent to the performance of agency that the piece demands, they will not co-operate in the creation of meaning, and there will be no fictional experience.

## 7.5 Conclusion

Researchers in the field of interactive fiction look to literary and dramatic theories and notions of agency to inform their work. Although some researchers conceptualize agency as the need for the user to be unconstrained and free to choose, others have concluded that constraints are a necessary part of constructing a fictional experience. In this paper I have argued that the constraints of the story world construct the kind of agent that emerges. I have also suggested that the author or authoring system must manipulate that world and the kind of agent that emerges. Examining concepts of agency I have suggested that users of interactive entertainment are very conscious that they have to "perform" agency in order to maximize their enjoyment of the world; and that this performance is the agency that emerges from the constraints set by the author but interpreted and acted out by the user. The paper then focuses on the role of interaction and of emotion in this manipulative but co-operative venture. Finally I have described the "snare" - a dramatic structure designed explicitly to utilize emotions to provoke constrained and manipulable actions.

## References

1. J. Anstey. Writing a story in virtual reality. In M. E. Hocks and M. Kendrick, editors, *Eloquent Images*, pages 283–304. MIT Press, Cambridge, Massachusetts, 2003.
2. J. Anstey and D. Pape. Being there: Interactive fiction in virtual reality. In *Consciousness Reframed 3*. CAiiA, University of Wales College, Newport, 2000.
3. J. Anstey, D. Pape, and D. Sandin. The Thing Growing: Autonomous characters in virtual reality interactive fiction. In *IEEE Virtual Reality 2000*. IEEE, 2000.
4. J. Anstey, D. Pape, S. C. Shapiro, O. Telhan, and T. D. Nayak. Psycho-drama in vr. In *The Fourth Conference on Computation Semiotics*, pages 5–13, 2004.
5. R. Barthes. *S/Z*. Hill and Wang, New York, New York, 1974.

6. M. S. El-Nasr. A user-centric adaptive story architecture - borrowing from acting theories. In *ACE 2004*. ACM, 2004.
7. C. Fencott. Agencies of interactive digital storytelling. In *Technologies for Interactive Digital Storytelling and Entertainment Conference*, pages 152–163. Fraunhofer IRB Verlag, 2003.
8. G. Frasca. Rethinking agency and immersion: playing with videogame characters. In *SIGGRAPH 2001 Electronic Art and Animation Catalog*, pages 59–63. ACM SIGGRAPH, 2001.
9. N. H. Frijda. *The Emotions*. Cambridge University Press, Editions de la Maison des Science de L’Homme, London, Paris, 1986.
10. T. Kjolner and N. Lehmann. Uses of theatre as model: discussing computers as theatre - some additional perspectives. In L. Qvortrup, editor, *Virtual Interactions: Interaction in Virtual Inhabited 3D Worlds*, pages 76–93. Springer-Verlag, 2001.
11. B. Laurel. *Computers as Theater*. Addison-Wesley, 1993.
12. A. Lemaire. *Jaques Lacan*. Routledge & Kegan Paul, London, 1977.
13. M. Mateas. A preliminary poetics for interactive drama and games. In *SIGGRAPH 2001 Electronic Art and Animation Catalog*, pages 51–58. ACM SIGGRAPH, 2001.
14. J. McGonigal. A real little game: The performance of belief in pervasive play. In *Digital Games Research Association (DiGRA) "Level Up" Conference*, 2003.
15. A. McMahan. Immersion, engagement and presence. In M. J. P. Wolf and B. Perron, editors, *The Video Game Theory Reader*, pages 67–86. Routledge, New York, New York, 2003.
16. J. Murray. *Hamlet on the Holodeck, The Future of Narrative in CyberSpace*. Simon and Schuster, New York, New York, 1997.
17. S. Nath. Story, plot & character action: Narrative experience as an emotional braid. In *Technologies for Interactive Digital Storytelling and Entertainment Conference*, pages 1–18. Fraunhofer IRB Verlag, 2003.
18. B. Perron. Silent thrills in silent hill, 2005. Lecture.
19. D.-P. Pertaub, M. Slater, and C. Barker. An experiment on public speaking anxiety in response to three different types of virtual audience. *Presence: Teleoperators and Virtual Environments*, 11(1):68–78, 2001. check date 2001.
20. A. R. Stone. *The War of Desire and Technology at the Close of the Mechanical Age*. MIT Press, Cambridge, Massachusetts, 1996.
21. J. Williamson. *Decoding Advertisements: Ideology and Meaning in Advertising*. Marion Boyars, London, 1978.