COGITATIO

**Media and Communication (ISSN: 2183–2439)**
**2018, Volume 6, Issue 2, Pages 137–144**
**DOI: 10.17645/mac.v6i2.1321**

Article

# The Form of Game Formalism

Ea C. Willumsen

Department of Information Science and Media Studies, University of Bergen, 5007 Bergen, Norway;
E-Mail: ea.willumsen@uib.no

Submitted: 21 December 2017 | Accepted: 12 March 2018 | Published: 7 June 2018

**Abstract**
This article explores how the concept of formalism and the resulting method of formal analysis have been used and applied in the study of digital games. Three types of formalism in game studies are identified based on a review of their uses in the literature, particularly the discussion of essentialism and form that resulted from the narratology-ludology debate: 1) formalism focused on the *aesthetic form* of the game artifact, 2) formalism as *game essentialism*, and 3) formalism as a *level of abstraction*, related to formal language and ontology-like reasoning. These three are discussed in relation to the distinctions between form and matter, in the Aristotelian tradition, to highlight how the method of formal analysis of games appears to be dealing with matter rather than form, on a specific fundamental *level of abstraction*, and in turn how *formal analysis* becomes a misleading concept that leads to unnecessary confusion. Finally, the relationship between *game essentialism* and the more computer science-centric approach to *ontology* is studied, to account for the contemporary trend of identifying the unique properties of games and opposing them with properties of, e.g., traditional storytelling media like literature and film, explored through their *aesthetic form*.

**Keywords**
aesthetic formalism; game formalism; game studies; research methods; research ideologies; Russian Formalism

**Issue**
This article is part of the issue "Games Matter? Current Theories and Studies on Digital Games", edited by Julia Kneer (Erasmus University Rotterdam, The Netherlands) and Ruud Jacobs (University of Twente, The Netherlands).



## 1. Introduction

Game studies is a relatively new and growing discipline, influenced by many related fields. As games become increasingly popular with new types of players, the academic interest in studying games is increasing too. However, in the emergence of a new field or discipline, we have to be careful with the direct application of existing methods and theories (Aarseth, 2001). If we force upon the study of games frameworks developed for studying other types of media, we will never understand exactly how games, and specifically digital games, differ from more traditional types of media, such as literature and film. Inevitably, the study of games will happen inside institutional structures and well-established fields, but this does not mean that games should be reduced to the traditions of these fields (Aarseth, 2001).

This article will examine one specific approach to the study of games, namely that of formalism, or, in this particular case, the idea of a certain branch of *game formalism*. The tradition of formalism is often understood in the context of, and related to, the study of literature, particularly the historical entities of Russian Formalism and New Criticism, but, as I will present it, formalism can be understood as both research ideology and method, and there are various ways in which the term has been used and altered for the study of digital games. This article will illustrate how we can distinguish between three types of formalism within the field of game studies:

1) formalism focused on the *aesthetic form* of the game artifact;
2) formalism as *game essentialism*;
3) formalism as a *level of abstraction*, related to formal language and ontological reasoning.

The three types of formalism will be uncovered and explored in relation to the method of formal analysis, to

outline the difference between research perspectives, ideologies, and methods. The discussion of the often-problematized distinction between ludology and narratology will be used as a point of departure for uncovering various ways of focusing on form in game analyses, and will inform the distinctions made between the three types of formalism presented above. Moreover, the distinction between *form* and *matter* (sometimes *content*), as first outlined by Aristotle and since explored and studied by many theorists, will be used to account for key differences between formalism-as-research-ideology and formalism-as-method, as the method of formal analysis (of games) tends to focus on listing the content of a given object or text, rather than defining its basic form.

## 2. From Plato to Games: A Short History of Formalism

Formalism can be traced all the way back to the ideas of Plato presented in his *Theory of Form*. He argued that beauty is a property that various objects can have, and therefore that it is a universal property: "The Form of Beauty manifests itself in all the different things, in all the different ways, we call 'beautiful'" (Lacewing, 2007, p. 1).

Plato's student, Aristotle, who stated that every physical object is a compound of matter and form, developed this first approximation of formalism further. He argued that "a thing's form is its definition or essence—what it is to be a human being, for example" (Ainsworth, 2016). In contrast, the answer to the question of what a specific object is made of is the thing's matter (Ainsworth, 2016). To truly understand an object is to understand its matter (its material cause), form or essence (its formal cause), what made the object come into existence (its efficient cause), and finally the function or purpose of the object (its final cause). To explain the difference between the formal and the material cause, which are specifically relevant for this study, Aristotle uses the example of a house. In a brick house, the material cause (or the matter) would be the actual bricks from which the house is built. The formal cause, which would coincidentally also be the final cause, as it refers to its use and purpose, is the fact that a house is defined as a shelter of a special type. The overlap between the causes in this case can be attributed to the fact that "houses, like all artefacts are functionally defined" (Ainsworth, 2016). Following this, Aristotle notes that although the four causes are all distinct questions, the three latter causes will often have the same answer, as is seen in the final and formal causes of the house (the efficient cause of which can be directly related to both). Yet, when approaching digital games—and also, for example, studies of film and media—we see that very different types of scholarships lead to explorations of each of these four causes: matter and form can be explored through ontological/analytical work, whereas the efficient cause depends on studies of the industry and the development process. The final cause depends on a thorough understanding of player/audience/user-responses.

To highlight the difference between the material and formal cause of digital games, consider a game example like *The Sims*. Following the Aristotelian distinction, the material cause refers to the material of which the game is made; not the source code, as this can be understood as a paratext to the actual, executed game (Willumsen, 2017), but rather the components that make up the game as played. This includes the sim characters, the environment, the buildings, and the more than 400 different objects that can be purchased using in-game currency (Consalvo & Dutton, 2006). These entities become the "bricks" of the game, but so do the rules that guide and limit player behavior, making a full analysis of the game's material cause rather comprehensive. This is made explicit by the analysis model suggested by Consalvo and Dutton (2006), which consists of the four very broad categories of *object inventory*, *interface study*, *interaction map*, and *gameplay log* (Consalvo & Dutton, 2006). The formal cause, on the other hand, refers to the very essence of the game, which is even less tangible and straightforward to define. The essence of *The Sims* might very well be defined in relation to any game definition, of which there are many (see, e.g., Stenros, 2017, for a comprehensive overview). As Stenros (2017) points out, there are disagreements about what can be considered the defining characteristics of games. This relates to the various attempts at suggesting game ontologies, which will be explored later in this text. For now, it must suffice to say that the essence of *The Sims* will necessarily relate to any assumed definition or ontology of games, where specifics may be added to make explicit the very nature of *The Sims*, to distinguish its essence from other game examples.

The formal cause appears to be the element that many humanist scholars have focused on when exploring their object of investigation from a formalist perspective. This can be seen, for example, in Roman Jakobson's outline of the *raison d'être* of Russian Formalism, in which he states that literary scholarship should focus not on "literature in its totality but literariness ('literaturnost'), i.e., that which makes of a given work a work of literature" (Erlich, 1973, p. 628). Isolated from its original context, the focus on the formal cause alone as a primary area of interest made Russian Formalism a very specific "flavor" of formalism, one that set out to explore exactly what constitutes the essence of literature. Other branches of the paradigm of thought presents more pragmatic yet still essence-centric ways of approaching the subject matter (see, e.g., Pötzsch's, 2017, discussion of different varieties of Russian Formalism). Approaches like the one suggested by Jakobson, i.e. the exploration of the unique properties of a given (class of) objects, are sometimes labeled *essentialism*.

The concept of essentialism, like that of formalism, can be traced back to Aristotle and the idea that certain objects or individuals have essential, definable natures. Such individuals would not survive a change in their essence, but would overcome a change in acciden-

tal properties. Put differently: "an *essential property of an object* is a property that it must have, while an *accidental property of an object* is one that it happens to have but that it could lack" (Robertson & Atkins, 2016, italics in original).

Aristotle linked the thinking about essentialism and form vs. matter in arguing that form and matter must account for non-accidental changes. In his conceptual analysis of change, he states that the change must have three default elements: "(1) something which underlies and persists through the change; (2) a 'lack', which is one of a pair of opposites, the other of which is (3) a form acquired during the course of the change" (Ainsworth, 2016). Accidental changes must have an object, or in Aristotle's terminology a *substance*, to underlie the change in question, whereas substantial changes involve the passing away or coming into existence of a given object/substance. The concept of *form* defines the *essence* of the object or substance in question (Ainsworth, 2016), and thus helps us determine whether a change has brought about a new object or rather altered an existing one—in other words, whether the change has been accidental or substantial.

However, problems arise when attempting to point out the essence of categories of objects, such as literature, but it may be that games pose a particularly difficult problem to Aristotle's thinking; we seem to be struggling with defining the characteristic of games, and determining what kinds of change we can understand as respectively accidental or substantial. What changes to *The Sims* would cause it to lose its essence as a game? Some changes would surely cause it to lose its essence as *The Sims* but allow it to remain a game, yet such arguments depend on how we understand and define the essence of games. It has been argued that *The Sims* can be understood as a borderline example of a game, as it, being an example of what Juul labels an *open-ended simulation game*, lacks tangible goals (Juul, 2003), making explicit the challenges of exploring the form and essence of games. We still lack a proper terminology to describe when a game ceases being a game *in form*, and takes on another form, e.g. as *interactive fiction*, *cinema*, or in the case of *The Sims* a (*dollhouse*) *simulation*.

### 3. Formal Analysis in Theory and Practice

In the field of digital game studies, various scholars have attempted to approach games using what they have termed *formal analysis*. An example of this is Lankoski and Björk's methodological inquiry, in which they argue that "formal analysis focuses on the different elements of a work, that is, asking questions about the elements that constitute the parts of the work and the role of each element in the composition as a whole" (2015, p. 24). Lankoski and Björk's definition makes central the need for distinguishing between formalism and formal analysis. One often follows the other, but the two are not by default linked, although their names might indicate otherwise.

According to David Myers (2010), formal analysis in literature is the method of the formalists, following the Russian tradition of formalism. Myers states that an example of a typical type of formal analysis would be the close reading practiced primarily by American New Critics. Similarly, Miguel Sicart argues, with respect to games, that "formal analysis is understood as descriptions of game components that can be discerned from others by means of their unique characteristics and properties. *Formal* should be understood in relation to aesthetic formalism, which contrasts 'the artifact itself with its relations to entities outside itself'" (Sicart, 2008). Here, Sicart builds on Wolterstorff's (1999; Sicart as cited in Audi, 1999) definition of Aesthetic Formalism as a general type of theory that emphasizes form in the study of the specific, aesthetic artifact. Wolterstorff argues that this type of formalism is best understood as a continuum on which a specific theory can be ranged as more or less formalist, and therefore Aesthetic Formalism is not a specific scientific ideology or theory, but rather as a categorization tool for other aesthetic theories, such as those of literature, music, and film. Thus, it does not make sense to explore *The Sims* in relation to Aesthetic Formalism per se, as this becomes a category for theories rather than an applicable tool for assessing the formal qualities of a (game) object. Instead, one must study a game using one of such theories for it to be an aesthetic formalist study.

The approaches from Myers and Sicart illustrate how formal analysis and two specific types of formalism, Russian Formalism and Aesthetic Formalism, have been understood in relation to one another. Myers and Sicart can be seen as representatives of the first two types of formalism listed in the introduction: Sicart focuses on *games as aesthetic objects* that, in the light of aesthetic philosophy, must be of a given form and contrasted to outside entities to be understood as an object of this group (Wolterstorff, 1999). Myers, on the other hand, taps into the more *essentialist* way of thinking that suggests that games, in the same way as some of the Russian Formalists understood literature, have some unique properties that should form the basis of what is studied in the field. It should here be noted that *essentialist* refers to the Aristotelian and descriptive use of the term, not its potential normative meaning. It is in no way meant as derogatory. The unique properties of the object or class of objects are what makes them worth studying and what justifies the establishment of a research field dedicated to the study of games.

However, some game scholars make use of the method of formal analysis without relating it to any specific (literary) tradition of formalism. Such scholars include for example the previously mentioned Lankoski and Björk. They explain:

> Formal analysis of gameplay in games takes a basis in studying a game independent of context, that is, without regarding which specific people are playing a specific instance of the game.…Performing a formal analy-

> sis of gameplay can be done both with the perspective that games are artifacts and that they are activities; in most cases, it blurs the distinction because both the components of a system and how these components interact with each other often need to be considered. (Lankoski & Björk, 2015, p. 23)

Lankoski and Björk's (2015, p. 23) approach, although focused on "understanding how the game system works", embraces one of the unique qualities of digital games; that they are special type of objects that depend on players to exist (Kücklich, 2002). In arguing that the formal analysis can be performed on the activity of playing (in Aarseth's, 2009, terminology, the *game process* as opposed to the *game object*), they distance themselves from Russian Formalism and Aesthetic Formalism and their tendency to focus on the intrinsic properties of the object as opposed to its relationship to outside entities.

This approach to games relates to the thinking of formalism as a *level of abstraction*, related to the need for a formal language that accounts for—and helps categorize—the specific elements of a system. This type of formalism, with its reliance on the construction of ontologies, is maybe best understood in relation to computer science, where an ontology is often defined as a formal naming and definition of entities and their relationships, which exist for a specific domain of discourse (Guarino, 1998, p. 7). Thus, the *formal* in this formalism has not to do with the actual formal matter, as in the Aristotelian tradition, but rather with a rule-bound (and, in the case of games, rule-based) system that superimposes on the developer certain standard procedures for naming and defining elements of said system, following some type of formalized logic.

## 4. Ludology and Narratology in the Light of Formalism

When approaching formalism in digital games it seems almost impossible to avoid a reference to the debate between narratology and ludology. Some people still defend (either of) the two positions of this discussion, whereas others deny the discussion ever taking place, or ridicule those who still refer to the thing as an actual debate (see, e.g., Frasca, 1999, 2003a; Murray, 2005; Pearce, 2005). Running the risk of upsetting readers who disagree with the radical distinction between the labels of "ludologist" and "narratologist", or find any of the two terms derogatory, some of the meta-comments on the debate may help us better understand the relationship between formalism and formal analysis in the context of game studies.

Following Thomas Malaby, "ludologists ultimately fell into the trap of formalism, treating games as special and distinct activities, fundamentally different from everyday life" (Malaby, 2007, p. 101). This was a result of their attempt at pinning down what may be understood as *gameness*, particularly in contrast to the notions of narrative and story. Malaby continues: "in contrast to the ludologists' initial focus on experience, the narratologists were overly concerned with *form*, especially the extent to which the product of a game experience can become an object of reflection and interpretation" (Malaby, 2007, p. 101, original emphasis). Yet, the form with which the "narratologists" were occupied was that found in traditional storytelling media, and it has often been suggested that narrative study of digital games forces upon the game models that do not quite fit. This has been attributed to the fact that games, literature, and film are three different types of media with very different properties and materialities (e.g., Frasca, 2003b; Juul, 2005).

Considered in relation to Aristotle's approach to form and matter, it appears as if the "ludologists" attempted to uncover the formal cause of the game object, including its essence, whereas "narratologists" tried to map the material cause to those found in various types of aesthetic artifacts, such as literature and cinema. Janet Murray does not appear to acknowledge the focus on form in the narrative study of games, and she focuses instead on clarifying the "ludologists'" approach to the unique properties of games. In *The Last Word on Ludology v Narratology in Game Studies*, Murray argues:

> The ideology [of ludology] can perhaps be called game essentialism (GE), since it claims that games, unlike other cultural objects, should be interpreted only as members of their own class, and only in terms of their defining abstract formal qualities. Separate from this ideology is a methodology which is also called "ludology" but which could perhaps be better named computer game formalism (CGF). As a methodology, CGF emphasizes the formal properties unique to videogames and attempts to analyse them and to create descriptors than [sic] can be used to classify and compare specific instances of game form. (2005, p. 2)

Game essentialism seems a fair and reasonable label for the formalist study of games, when considered descriptive rather than normative, as, following the Russian tradition, the formalist study of texts has always been occupied with uncovering the essential features of the object under investigation. As shown earlier, this matches Aristotle's discussion of the essence being what establishes the formal matter of the substance in question. However, the description of the methodology suggested by Murray poses some problems to the overall distinction between narratology and ludology, and for the empirical object in game analyses: as illustrated by the description of formal analysis offered by Lankoski and Björk (2015), a study of the formal properties of video games does not have to exclude a focus on the player-subject in the same way that the ideology of Game Essentialism would. As a matter of fact, exploring how various types of players relate and react to a digital game may help us understand the game and its unique properties even better, as exemplified by Kristine Jørgensen's (2013) study of gameworlds.

Complicating the matter even further, we can observe that the methodology that Murray labels *Computer Game Formalism*, the focus on properties unique to video games, is actually very close to Malaby's outline of narratology as focused on *form*. The primary difference is its reliance on what we may call *x-essence* or *x-ness*; narrative analysis of games often explore games in relation to an idea of *narrativeness*, defined by the narrative theory chosen for analysis, whereas a ludo-centric analysis depends on an understanding of gameness. Both analyses, however, seem focused on the *material cause*, i.e., the content of games, e.g., that studied with regards to *The Sims* by Consalvo and Dutton (2006), rather than the *formal cause*, the latter of which is used for establishing the *x-ness* on which the analysis is built (for example *game ontology*).

Hence, it is possible to argue that ludologists build on the second type of formalism listed in the introduction, that of *game essentialism*, where the unique properties of the object are highlighted as the most central to the study of games in general. Narratologists, on the other hand, build on a non-game specific formalism, and become instead focused on the aesthetic form in general, thus relating to the first type of formalism presented in the introduction, namely that which focuses on the *aesthetic form* of the game object, contrasting it to outside entities, but not simply focusing on its unique properties as a game.

## 5. Formal Analysis as Material Analysis

The observation outlined above points towards the idea that what is often termed *formal analysis* does not actually engage with Aristotle's formal cause, Jakobson's "literariness", or any specific game form or gameness. Instead, the formal analysis as a research method is an investigation of the matter of the object in question. Thus, it would appear more terminologically correct, when considered from an Aristotelian perspective, to refer to the method as *material analysis* rather than *formal*, although *material* may, to some, appear to relate to the physicality of the object under investigation, rather than its physical and conceptual matter.

When investigating existing studies of games it becomes increasingly evident that most formal analyses actually explore matter or content rather than form, and thus that they easily take the form of the more media-studies specific method of *content analysis*. This is evident in the work by Lankoski and Björk (2015) who, as a means of exemplifying their take on formal analysis, list the various *components*, *actions*, and *goals* for a specific game, in their case PopCap's *Plants vs. Zombies* (2009). Their analysis is very descriptive, as they list the different types of components and their respective actions, map the layout of the environment projected on the screen, and explain various ending- and winning conditions of the game.

The ludo-centric formal analysis presented by Lankoski and Björk builds on a third type of formalism, *formalism as a level of abstraction*. They build on a computer science tradition of ontologies as they structure their analysis according to certain categories that are understood as the elements constituting the form of the game: the *components*, *actions*, and *goals*. However, formalism as a level of abstraction can be combined with one of the two other approaches to formalism in game studies. Lankoski and Björk appear, in their work with mapping out the constituting elements of the game, to rely also on a game essentialist ideology.

Similarly, narrative material analyses may build on formalist understandings of narrative or *narrativeness*, and at the same time work with formalism as a specific level of abstraction in the analysis. Daniel Vella (2015) illustrates an example of this in his translation of Uri Margolin's (1986) theory of literary characters into the study of game characters and avatars. Here, the elements constituting the character form the basis of the analysis through the categories of *static mimetic elements*, *dynamic mimetic elements*, and *formal textual patterns* (Vella, 2015, p. 375). The analysis becomes a description or summary of the *matter* of the character rather than engaging directly with its *form*, because formalism as a level of abstraction does not deal with form as we know it from Aristotle.

It thus becomes possible to distinguish formalism as a level of abstraction from the two other types of formalism—game essentialism and Aesthetic Formalism. The former can be combined with any of the latter two, but it never actually engages with *form* in the Aristotelean sense. Rather, it deals with the formalized components of a system, or with the *matter* or *content*, at the most basic level possible. In extension to this, we can see that formal analysis is a study of the *matter* or *content* that becomes formal only in its reliance on *ontology* (as a pointer towards *game essentialism*) to form a basis for categorizations applied as analytical models or lenses.

## 6. From Gameness to Ontology

Having defined three different types of formalism in game studies, and hopefully clarified some of the confusion that may come as a result of applying identical terms for diverse research ideologies and methods, this section will be dedicated to a brief overview of the relationship between *game essentialism*, *formalism as a level of abstraction*, and *formal analysis*, approached through the concept of *ontology*.

Recent years have seen a fascination on the part of game scholars with mapping the fundamental components of games. While this trend is not necessary very new (Avedon, 1971, attempted already in the 1970s to map the basic structural elements of games), modern approaches have been increasingly occupied with what is often referred to as the *ontology* of digital games.

As previously stated, these game-specific ontologies relate to the computer science tradition of the term, which makes them closely resemble taxonomies, where

the hierarchy of entities, the relations between these entities, and naming conventions are central to the construction of the system. An example of this type of ontology is The Game Ontology Project, developed by Zagal, Mateas, Fernández-Vara, Hochhalter and Lichti (2007), in which they state the goal of developing "a game ontology that identifies the important structural elements of games and the relationships between them, organizing them hierarchically" (Zagal et al., 2007, p. 22).

Zagal et al.'s study is just one of many (see, e.g., Aarseth & Calleja, 2015; Björk, Lundgren, & Holopainen, 2003; Bogost, 2006; Hunicke, LeBlanc, & Zubek, 2004; Järvinen, 2007) that attempt to outline the basic components of games, on a very specific *level of abstraction*, one that is fundamental enough to somehow embrace the *essence* of digital games. As such, these ontological studies can be understood as formalist in two ways: they deal with the subject matter of games on as basic and fundamental a level as possible, while still remaining very close to the object under investigation (ensuring the essentialist perspective), defining and arranging categories of the *game matter*, translating the findings, obtained through a *formal analysis*, into a *model* or *form* that is then labeled *ontology*.

We see from this short process of "doing ontology" that several formalisms are at play at once, including the method of formal analysis. It thus seems reasonable to criticize the terminological imprecision of formalism as it is presented in the game studies literature, as each type of formalism—along with methods of similar names—contributes with new and unique scientific approaches that alter the focus of the study in question. To work with game formalism is not simply to focus on the Aristotelian *form*, it may also be to explore the unique properties of said form, contrasting it or comparing it with other related objects (e.g., aesthetic artifacts), or to look into the *matter* on the lowest possible level of abstraction, attempting to uncover something meaningful about the *form* through this endeavor. Game formalism is not one particular "flavor" of formalism, but rather a variety of traditions through which the scholar may approach the empirical object. Therefore, we must be wary when using the term, both in relation to scholarly ideologies or approaches, and to scientific research methods.

Each of the three approaches identified offers different insights into games. As a final point of discussion, let us return to the example of *The Sims*. From the perspective of formalism as focused on the *aesthetic form* of the artifact under investigation, *The Sims* can be studied using a variety of formalist methods categorized as aesthetic formalist theories using Wolterstorff's (1999) distinction. One could, for example, explore whether we can conceive of *The Sims* in terms of structural narrative and its core components, as studied in, for example, Propp's (1928/2009) *Morphology of the Folktale* (to name a scholar of the Russian Formalist school). Conducting an analysis build on this theory, some of the significant differences between the traditional mediums for storytelling and digital games would become apparent. We would likely find that *The Sims* does not adhere to traditional narrative structures, as it is not a story-driven game, but rather a dollhouse-simulation, whereas games like *Uncharted: Drake's Fortune* (Naughty Dog, 2007) or *The Witcher 3: Wild Hunt* (CD Projekt Red, 2015) may resemble the structures outlined in Propp's work to a much higher degree, as these are more centered on conveying a pre-scripted story to the player. As such, studies rooted in aesthetic formalist theories may ultimately contribute to our understanding of the essence of games, as they can help us point out how they are different from other types of media. This brings us to the discussion on the *essentialist* approach to formalism.

As I have argued, based on the discussion on Aristotle's conceptualization of material and formal causes, it is challenging to suggest a definition of the essence of *The Sims* without relying on a definition of games and digital games, and without exploring the example in depth. The analysis model suggested by Consalvo and Dutton (2006), operating through the four categories of *object inventory*, *interface study*, *interaction map*, and *gameplay log*, approaches something which resembles an ontology, but they never define exactly what constitutes the essence of the game or of games in general. The much-debated definitions of games can be seen as indicators of why this type of formalism is problematic—a definition will always relate to the research agenda of the individual scholar, the disciplinary background of the scholar, and many related factors. Thus, the task of the game essentialist is to skillfully navigate these various approaches, make explicit the need for new insights, and explore how new ontologies, definitions, and the like contribute meaningfully to the field and to the study of game-ness.

Finally, formalism as a level of abstraction can be understood in relation to the generation of ontologies, but also as a way of approaching the specific analysis of a game through that which Lankoski and Björk (2015) refer to as *formal analysis*. They illustrate how formalism in this sense translates into the study of the structural components of the specific game analysed, which in turn becomes an analysis centered on the content, resembling the method of content analysis. For *The Sims*, this is exactly the type of analysis that is conducted by Consalvo and Dutton (2006) on the various items that can be obtained in the game, which are categorized based on the types of encounters they afford. While the content analysis of Consalvo and Dutton's study appears meaningful in context, this way of approaching games may not always be equally useful, and for some games it may be an unnecessarily cumbersome task to describe all structural elements, putting into question the general applicability and value of this approach.

## 7. Conclusion

This article has explored different uses of *formalism* and *formal analysis* in the study of digital games. Based on

this exploration, I suggest we distinguish between three different types of formalism: 1) formalism focused on the *aesthetic form* of the game artifact, 2) formalism as *game essentialism*, and 3) formalism as a *level of abstraction*, which can be combined in various ways, but which should be maintained conceptually distinct in order to understand their basic nature and influence on the research in which they are incorporated. In the light of the narratology-ludology debate, I suggest we understand ludology as formalist in the sense that it builds on the idea that games have unique properties worth studying (an essentialist approach). Narratology, on the other hand, can also be understood as formalist, but in a general aesthetic tradition, where models developed for other types of storytelling media are superimposed on the study of games, focusing on the *narrativeness* of games, rather than the *gameness*.

To account for the *gameness* of games, various scholars work with the (computer science specific) concept of *ontology*, through which they attempt to map the basic components of games. Such ontologies can be used in formal analyses, relating to formalism as a level of abstraction, in which the focus is on the content or matter rather than the form, the latter of which is made central through the use of an ontology. Thus, formal analysis, when considered from the perspective of Aristotle's distinction between form and matter, should perhaps be called *material analysis*, as it depends on other formalist works to form the basic categories into which game content is categorized and listed.

**Conflict of Interests**

The author declares no conflict of interests.

**References**


Aarseth, E. (2001). Computer game studies, year one. *Game Studies*, *1*(1). Retrieved from http://gamestudies.org/0101/editorial.html

Aarseth, E. (2009). Define real, moron! Some remarks on game ontologies. In S. Günzel, M. Liebe, & D. Mersch (Eds.), *DIGAREC keynote-lectures 2009/10* (pp. 50–69). Potsdam: Potsdam University Press.

Aarseth, E., & Calleja, G. (2015). The word game: The ontology of an undefinable object. In *Proceedings of the 10th international conference on the foundations of digital games*. New York, NY: ACM.

Ainsworth, T. (2016). Form vs. matter. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*. Retrieved from https://plato.stanford.edu/archives/spr2016/entries/form-matter

Audi, R. (1999). *The Cambridge dictionary of philosophy*. Cambridge: Cambridge University Press.

Avedon, E. (1971). The structural elements of games. In E. Avedon & B. Sutton-Smith (Eds.), *The study of games* (pp. 419–427). New York, NY: John Wiley.

Björk, S., Lundgren, S., & Holopainen, J. (2003). Game design patterns. *DiGRA '03—Proceedings of the 2003 DiGRA international conference: Level up*. Retrieved from http://www.digra.org/digital-library/forums/2-level-up

Bogost, I. (2006). *Unit operations: An approach to videogame criticism*. Cambridge, MA: MIT Press.

Consalvo, M., & Dutton, N. (2006). Game analysis: Developing a methodological toolkit for the qualitative study of games. *Game Studies*, *6*(1). Retrieved from http://gamestudies.org/0601/articles/consalvo_dutton

Erlich, V. (1973). Russian formalism. *Journal of the History of Ideas*, *34*(4), 627–638.

Frasca, G. (1999). Ludologia kohtaa narratologian [Ludology meets narratology]. *Parnasso*, *3*, 365–371.

Frasca, G. (2003a). Ludologists love stories, too: Notes from a debate that never took place. In *DiGRA '03 Proceedings of the 2003 DiGRA international conference: Level up*. Retrieved from http://www.digra.org/digital-library/forums/2-level-up

Frasca, G. (2003b). Simulation versus narrative: Introduction to ludology. In M. J. P. Wolf & B. Perron (Eds.), *The video game theory reader* (pp. 221–235). New York, NY: Routledge.

Guarino, N. (1998). Formal ontology in information systems. In N. Guarino (Ed.), *Proceedings of FOIS'98* (pp. 3–15). Amsterdam: IOS Press.

Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: A formal approach to game design and game research. In *Proceedings of the AAAI Workshop on Challenges in Game AI*.

Järvinen, A. (2007). Introducing applied ludology: Hands-on methods for game studies. In *DiGRA '07—Proceedings of the 2007 DiGRA international conference: Situated play*.

Jørgensen, K. (2013). *Gameworld interfaces*. Cambridge, MA: MIT Press.

Juul, J. (2003). The game, the player, the world: Looking for a heart of gameness. In *DiGRA '03—Proceedings of the 2003 DiGRA International Conference: Level up*. Retrieved from http://www.digra.org/digital-library/forums/2-level-up

Juul, J. (2005). *Half-real. Video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.

Kücklich, J. (2002). The study of computer games as a second-order cybernetic system. In F. Mäyrä (Ed.), *Computer games and digital cultures* (pp. 101–111). Tampere: Tampere University Press.

Lacewing, M. (2007). *Plato's theory of forms*. London: Routledge.

Lankoski, P., & Björk, S. (2015). Formal analysis of gameplay. In P. Lankoski & S. Björk (Eds.), *Game research methods: An overview* (pp. 23–35). Pittsburgh, PA: ETC Press.

Margolin, U. (1986). The doer and the deed: Action as a basis for characterization in narrative. *Poetics Today*, *7*(2), 205–225.

Malaby, T. M. (2007). Beyond play: A new approach to games. *Games and Culture*, *2*(2), 95–113.

Murray, J. H. (2005). The last word on ludology v narratology in game studies. In *DiGRA '05–Proceedings of the 2005 DiGRA international conference: Changing views: Worlds in play*.

Myers, D. (2010). *Play redux: The form of computer games*. Ann Arbor, MI: University of Michigan Press.

Pearce, C. (2005). Theory wars: An argument against arguments in the so-called ludology/narratology debate. In *DiGRA '05—Proceedings of the 2005 DiGRA international conference: Changing views: Worlds in play*.

Pötzsch, H. (2017). Playing games with Shklovsky, Brecht, and Boal: Ostranenie, v-effect, and spect-actors as analytical tools for game studies. *Game Studies*, *17*(2). Retrieved from http://gamestudies.org/1702/articles/potzsch

Propp, V. (2009). *Morphology of the folktale*. Austin, TX: University of Texas Press. (Original work published 1928)

Robertson, T., & Atkins, P. (2016). Essential vs. accidental properties. In Ed. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*. Retrieved from https://plato.stanford.edu/archives/sum2016/entries/essential-accidental

Sicart, M. (2008). Defining game mechanics. *Game Studies*, *8*(2). Retrieved from http://gamestudies.org/0802/articles/sicart

Stenros, J. (2017). The game definition game: A review. *Games and Culture*, *12*(6), 499–520.

Vella, D. (2015). *The ludic subject and the ludic self: Analyzing the 'i-in-the-gameworld'* (Doctoral dissertation). IT University of Copenhagen, Copenhagen, Denmark.

Willumsen, E. C. (2017). Source code and formal analysis: A reading of passage. *Transactions of the Digital Games Research Association*, *3*(2), 213–235.

Wolterstorff, N. P. (1999). Aesthetic formalism. In R. Audi (Ed.), *The Cambridge dictionary of philosophy*. Cambridge: Cambridge University Press.

Zagal, J. P., Mateas, M., Fernández-Vara, C., Hochhalter, B., & Lichti, N. (2007). Towards an ontological language for game analysis. In S. De Castell & J. Jenson (Eds.), *Worlds in play: International perspectives on digital games research* (pp. 21–37). New York, NY: Peter Lang.

**About the Author**

**Ea C. Willumsen** is a PhD student at the University of Bergen, where she is employed as a part of the Media Aesthetics Research Group. Her PhD project is a theoretical exploration of the relationship between avatars and gameworlds. She holds a MSc from the IT University of Copenhagen in Game Analysis and a BA from Roskilde University in Communication and Computer Science.