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Author(s): Mochocki, Michał; Koskimaa, Raine

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MICHAŁ MOCHOCKI
Department of Anglophone Literatures
Kazimierz Wielki University in Bydgoszcz, Poland

RAINE KOSKIMAA
Centre of Excellence in Game Culture Studies
University of Jyväskylä, Finland

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Story beats in videogames as value-driven choice-based unit operations[*]

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We present a framework of story beats, defined as microunits of dramatic action, as a tool for the ludonarrative analysis of videogames. First, we explain the Goal - Action - Reaction - Outcome model of the story beat. Then, we present six types of story beats, Action, Interaction, Inaction, Mental, Emotion, and Sensory, providing videogame examples for each category. In the second half of the paper, we contextualise this framework in the classic game studies theory of videogame narrative and player action: unit operations, gamic action, anatomy of choice, and game design patterns, wrapping it up in the most recent trends in cognitive narratology. Ultimately, we present the story beat as a ludonarrative unit, working simultaneously as a 'unit operation' in the study of games as systems, and as a microunit of character action in narrative analysis. The conclusion outlines prospective directions for using story beats in formal, experiential, and cultural game research.

Keywords: transmedia, narrative, beat, narratology, character, videogames, game studies

Introduction

We approach the story beat as a microunit of dramatic action found in all narrative media: the smallest unit discernible within scenes. A scene may consist of only one beat, but often has more. Focusing on transmediality and narrativity, a story beat framework may be a unified classification system of narrative microunits across film, fiction, drama, and videogames.[1] In this paper, however, we are focusing entirely on videogames, with transmedial narratology secondary to game studies. We are not abandoning the narrative focus, sticking to the idea of the story beat as a unit of dramatic action involving imaginary characters, but we will approach it through the formal lens of games-as-systems, and the experiential lens of player action.

We start by the presentation of the story beat framework, originally developed for multiple narrative media,[2] which includes the

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[1] M. Mochocki, R. Koskimaa, *Transmedial Story Beats: Towards A Ludonarrative Framework Across Film, Drama, Fiction, and Videogames*, forthcoming.
[2] Ibidem.

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GARO structural model of the beat and a classification system with six categories. In sections 2 and 3, we demonstrate the framework with videogame examples for each category. The games are selected for practical purposes in that they employ specific beat types in an illustrative way, but many other games could have been used as well. Finally, in sections 4 and 5, we position story beats in the 'foundational' theories of game narratives and gamic action developed in the 2000s: unit operations, gamic action, anatomy of choice, and game design patterns. The conclusion outlines prospective directions for using story beats in formal, experiential, and cultural game research.

The story beats framework explained

The GARO structural model for story beats[3] has four parts:

(G) Goal: what the acting character is trying to achieve in terms of story values. Story values are binaries, such as "alive/dead", "locked/unlocked", "hostile/friendly", "known/unknown" etc., with the character's intended goal expressed in the infinitive ("to do… / to achieve…"),

(A) Action: what the active agent is doing to achieve G, expressed as a gerund or active verb,

(R) Reaction: what resistance comes from an opposing force, also expressed as a verb. This R is driven by a corresponding Goal, "not to do…" or "to do … instead", running contrary to the G that drives A.

(O) Outcome: what results from the A+R confrontation, expressed in terms of story values being changed or staying unchanged. If a value is changed, this is a turning point for the scene.

Sometimes the beat is more R- than A-driven, especially if it is the R-eaction that relies on the player character's choice. See 3.1 and 3.2.

The R part has some less obvious variants besides an actively opposing force. **Passive resistance** is one alternative. For instance, the (G) Goal is "to unlock the door" (story value: "locked/unlocked"; which may be linked to higher-level values "imprisoned/free"). The (A) is the Action of "lockpicking" (may also be "bashing down", or "shooting the lock", etc.). The (R) is the opposing Reaction, which in this case is passive "resisting" by the mechanism, its countergoal being "to remain locked". The (O) Outcome will either change the story value "locked > unlocked", or fail to do so.

Another variant is **Internal struggle** beats that locate A and R in the character's mind as two opposing ideas or desires.

We also accept **R-less beats** (GA_O) as the weakest form of what could possibly count as dramatic action. Examples include: conducting a library search to find critical information; tracking footprints in the forest; shooting at a motionless target; climbing a wall. The confrontation happens between the character's A and the difficulty of the task, as determined by environmental factors and the character's skill level. This is similar to 'passive resistance', but it hardly makes sense to say that books, footprints, target shields, or walls are "resisting". The essential

[3] Ibidem.

point is that the A may succeed or fail, so the O remains uncertain. The risk of failure is enough to add dramatic tension to the A.

With such variations, this model powers various categories of story beats, which we classify according to the nature of dramatic action driving the beat:

1) Action Beats, driven by DO-ing, divided into Physical, Magical, and Technical subtypes,

2) Interaction Beats, driven by SAY-ing or INTERACT-ing, divided into Feel good/bad, Convince, Find out, and Change status,

3) Inaction Beats, defined by NON-action, divided into Physical stoppage and Verbal stoppage,

4) Emotion Beats, driven by FEEL-ing, divided into Calm and Trigger,

5) Mental Beats, driven by THINK-ing, divided into Psionics, Decision, and Discovery,

6) Sensory Beats, driven by SENSE-ing, divided into Natural senses and Super senses.

This framework is informed by a mix of literature on story beats in the theatre,[4] film,[5] fiction,[6] and videogames,[7] plus 'stragetic experiential modules' from experiential marketing.[8] For detailed credits, see Mochocki & Koskimaa;[9] though it seems this paper will be out first).

As creative work often deviates from ideal models, we come across mixed-type beats, with the A and R in the A+R confrontation representing different categories (see 2.0 below). We also have incomplete beats with no O, often in chains of A+R confrontations where the next A doubles as R(eaction) to the previous beat. Due to limited space, in this paper we focus on standard full-size beats, but it should be noted that GARO as the basic 'atom' of dramatic action is divisible into 'subatomic' parts.

Story beats are defined by **dramatic** action: one that struggles with an opposing reaction/resistance, and the outcome of this confrontation is/seems uncertain. This is contrasted with **simple**, i.e. non-dramatic, action that effortlessly succeeds. To adjust the granularity of story beats to a reasonable level, we also introduce **serial action**: aggregation of multiple microactions aimed at the same goal. In video game studies, this is particularly useful in the analysis of combat scenes.

[4] W. Dunne, *The Dramatic Writer's Companion: Tools to develop characters, cause scenes, and buildstories,* Chicago 2009.

[5] R. McKee, *Story: Substance, structure, style and the principles of screenwriting,* New York 1997.

[6] K. Cowley, *Action beats, dialogue beats and beat variation*, [in:] *Stories Matter*, 2014, <http://www.katherinecowley.com/blog/action-beats-dialogue-beats-and-beat-variation/>, accessed: 2.03.2020; eadem, *Writing Powerful Story Beats in Fiction,* SlideShare 2016, <https://www.slideshare.net/kathycowley/writing-powerful-story-beats-in-fiction>, accessed: 2.03.2020.

[7] A. Ganszyniec, *Narrative-driven Game design*, YouTube 2018, <https://www.youtube.com/watch?v=KR6W6YkUcd4>, accessed: 2.03.2020.

[8] B. Schmitt, *Experiential Marketing: How to get customers to sense, feel, think, act, and relate to your company and brands*, New York 1999.

[9] M. Mochocki, R. Koskimaa, forthcoming.

If we were to isolate single (not serial) actions in combat in *Witcher 3*, we would have: fast attack, strong attack, dodge, change weapon, move, eat food, drink potion, use a witcher sign. Some of those can be story beats defined by dramatic action: attacks as A-actions meet with R-reactions; dodge counts as Geralt's R to somebody's A. Some are not: healing and the Quen sign (magic shield) meet no opposing force, being 'simple' (non-dramatic) actions. Moreover, in prolonged combat with multiple attacks, movements, and defensive actions, most are of little consequence. Damage is being dealt and healing resources spent in small amounts, without a sudden change in the life/death situation. Only one or two decisive attacks become value-changing turning points: those that kill, incapacitate, or which otherwise determine victory. This can be seen as multiple inconsequential beats, escalating to one beat (climax) with the turning point that ends the scene.[10] Alternatively, all combat and healing actions can thus be framed as one **serial** A action expressed in one verb: "fighting"; with a similarly serialised R reaction "fighting back" constituting only one beat.

It is also possible to point to mid-scene turning points: moments that do not yet decide 'win/lose' but 'gain a significant advantage', such as disarming or stunning the enemy. In Dunne's dramatic writer's companion, "a change of beat often reflects a change of strategy."[11] If a character fails to do something on their first try, and immediately tries a new strategy and wins, we have a two-beat scene. Video game combat easily lends itself to such compartmentalisations: a 'change of strategy' enacted by a change of weapon or preferred form of attack, or moving from one opponent to the next, or switching from offensive to defensive tactics. This last option makes sense in *Witcher 3*; we may fight a group of drowners defensively, with frequent dodging and healing as we are knocking monsters down one by one, only to switch to offensive style with the last creature. Consequently, the scene would have two beats (defensive combat + offensive combat). An even better example from *Witcher 3* is a confrontation with shield-bearing enemies, the first beat aiming to change the "shielded/unshielded" story value, to refocus on "alive/dead" when the shield is dropped.

It is certainly possible to scale the granularity of story beats down to each single attack/defense, or one beat for each fallen monster, but compartmentalisation into two-three larger beats as combat stages seems much more productive.

Action, speech, and inaction beats

Of the six types of story beats (see Introduction), only Action and Interaction are commonly recognised in videogame design (the latter under the name of 'dialogue beats'). Different games offer different diversity of particular forms of dramatic action, which depends

[10] J. Yorke, *Into the Woods: A five act journey into story,* London 2013.

[11] W. Dunne, op.cit., p. 122.

not only on the game, but also genre, and historical moment of genre development. For instance,

> The plot of most first-person shooter games is to wage as much slaughter as possible; in Thief, the main goal is to avoid conflict, sneaking through shadows and darkness to avoid detection. Deus Ex, also principally designed by Thief 's Warren Spector and built on the Unreal game engine, extends Thief 's design to include forms of goal-reaching beyond both combat and stealth. Deus Ex adds character interaction and skill use as alternative, nonviolent ways to traverse the same narrative space; in fact, the player has access to numerous solutions for any one challenge the game provides. The particular innovation of Deus Ex is its addition of a moral tenor: each violent and nonviolent player decision affects the outcome of the game.[12]

We have divided Action beats into Physical, Technical, and Magical, all driven by verbs reflecting DO-ing. Interaction beats are driven by SAY-ing (and therefore could be termed Speech beats), or gestural-physical INTERACT-ing (could be called Body Language beats), but we decided to unify the verbal and nonverbal varieties under one category (corresponding with Dunne's 'behavioral beats'). Instead, we subdivide Interaction beats into Feel good/bad, Find out, Convince, and Change Status. The next category, named Pause/Inaction beats, are refusals to act or speak: Physical stoppage or Verbal stoppage. These are not driven by any active verb, as they are NON-action.

Often, the A and R in the GARO structure may belong to different categories of dramatic action. For instance, a physical attack A may be repelled with a magic shield R. Both are (re)actions based on DO-ing, but of different subtypes: Action: Physical versus Action: Magical. In such cases, we assume it is always the A or R of the **focalising character** (typically = player character) that determines the subcategory for the beat.

Such type-mixing also happens between the main beat categories. Imagine one character shouting an insult, and the other responding by throwing a punch. The nature of dramatic action in A "insulting" classifies it as an Interaction beat, subtype: Feel bad. But the R "punching" / "assaulting" begs to be classified as Action: Physical. With Interaction beats, we could always stretch the scope of non-verbal physical INTERACT-ing to include "punching" among behavioural forms of communicating emotions, next to "hugging" and "pushing", as it is done in *The Sims*. But behavioural interactions cannot be possibly stretched as far as to include all beat varieties. When the A "insulting" (Interaction: Feel bad) is answered with R "mind control" (Mental: Psionics), or R "casting magic missile" (Action: Magical), the beat is clearly mixed.

[12] I. Bogost, *Unit Operations: An approach to videogame criticism*, Cambridge, MA, 2006, p. 63.

Action & interaction examples

The following examples come from the gameplay trailer for *Cyberpunk 2077*, available on the GamesRadar channel on YouTube.

A higher-level story value, i.e. the mission objective, is to rescue a kidnapped woman. In the language of changeable values / game states, the value binary is "kidnapped/rescued", which will determine the "failed/accomplished" for the mission. Rescuing requires a gunfight, where the player character's life is at stake: "alive/dead". The loss of health from wounds is incremental, which makes this value at least three-stage: "alive/wounded/dead", the "wounded" state being a scale. (Alternatively, we may think in two binaries: "alive/dead" and "wounded/unharmed"). Enemy combatants may also be assigned the "alive/dead" values. However, in this scene (as in many games), the point is not specifically to kill; it is often enough to eliminate the opponent from combat. Therefore, even if "alive/wounded/dead" also makes sense, it is perhaps better to set the values as "active threat/eliminated threat". This will equally apply to situations when the intention is to kill and to those where killing is not necessary, and also to combat with machines, whose state cannot be named "alive/dead". The most frequent verbs for (A) and (R) in the first mission are "shooting" and "ducking/taking cover"; the most frequent (G) Goal is to "eliminate threat", aka "kill enemy". Selected beats are listed by the timestamp in the trailer.

2:03 Action: Technical
G: to unlock door / A: player character (PC)'s remote partner T-Bug is hacking the lock / R: electronic lock resists hacking for a while / O: hacking is successful, the door opens (story value: locked > unlocked)

2:40 Action: Physical
G: to approach the scavenger quietly / A: character is sneaking up to him / R: is perhaps perceiving the environment but unsuccessfully due to headphones / O: unnoticed, PC moves within the reach to hit the enemy from behind (story value change: out of reach > within reach; undetected > undetected)

2:44 Action: Physical
G: to eliminate the scavenger / A: PC hits him on the head, pushes his head down in the water, and shoots point blank; all three actions may be aggregated as a serial action "attack" or "assassinate" / O: the scavenger is eliminated (killed, in all likelihood) (story value: active threat > eliminated threat; alive > dead)

3:00 Action: Physical
G: to eliminate the scavenger in the corridor / A: PC is shooting / R: surprised scavenger fails to defend himself / O: scavenger is eliminated (story values: as above)

3:02 Action: Physical (serial action)
G: to eliminate the group of scavengers in the next room / A1: PC and A2: her partner are shooting and ducking / R*: scavengers are shooting back / O: all scavengers but one are eliminated, PC is wounded (*R may be analysed as one collective reaction, or R1, R2… for each combatant)

3:34 Action: Physical
G: to eliminate the last scavenger from the other room / A: PC continues shooting / R: scavenger is shooting back / O: the scavenger is eliminated (story value: active threat > eliminated threat; alive > dead)

3:37 Action: Physical
G: to eliminate the previously-unseen scavenger boss / A: PC is shooting / R: enemy is retreating to the next room closing the door / O: PC fails to shoot the boss down, the boss remains an active threat behind closed door (story values: active threat > active threat; enemy without cover > enemy behind cover)

3:40 Action: Physical
G: PC's partner wants to open the door / A: by pulling it / R: the door resists / O: staying locked (story values: all remain unchanged)

3:44 Action: Physical
G: to eliminate PC and partner / A: enemy starts shooting through the wall / R: to survive, PC and partner rush to find cover / O: they survive behind cover (story values: without cover > behind cover)

3:50 Interaction: Convince
G: to convince PC to do so / A: partner shouts "Blast the wall!" / R: PC accepts the plan / O: and moves to do as told (story values: hiding > taking initiative; unmotivated > motivated)

3:54 Action: Physical
G: to eliminate the boss / A: PC starts shooting blindly at the wall / R: enemy returns fire / O: both shooters remain active (unchanged story value for all participants: active threat + alive + behind cover)

3:55 Interaction: Convince
G: to persuade PC to locate the enemy with a scanner / A: partner shouts "Use your fucking scanner!" / R: PC replies "Got none to fucking use! / O: request is rejected (story value: none changed)

4:05 Interaction: Convince
G: to persuade PC to go attack the enemy from the balcony / A1: T-Bug tells PC to do so + A2: partner tells PC to distract the enemy / R: PC decides to obey / O: PC moves to do as told (story values: stuck > on the move; no plan > a new plan)

4:13 Action: Physical
G: to eliminate the boss / A1: PC is shooting from the balcony window + A2: partner is charging through blasted wall to melee attack / R: boss unsuccessfully directs fire on the PC / O: partner eliminates the boss (story value: active threat > eliminated threat)

4:52 Action: Technical
G: to check the health of the rescued girl / A: PC connects and activates biomonitor / R: biomonitor successfully runs the scan / O: biomonitor displays health status, and provides information about TT medical insurance with blocked signal (story values at stake: "unidentified/identified" health status in this particular action, "alive/dead" for the girl, and "successful/failed" for the mission (which will fail if the girl is not rescued alive).

5:13 Interaction: Find out
G: to find out about the jammed signal / A: PC asks T-Bug for help / R: T-Bug tells to check the neurosocket and remove shard / O: PC knows what to do (story values: "unknown/known" course of action, linked to higher-level story values as above)

5:23 Action: Technical
G: to restore signal to TT / A: PC reaches to pull the shard / R: the shard is easily removed / O: signal restored, a message from TT announces help will arrive in 180 seconds (story values: "jammed/unjammed" for the signal, which translates to "not coming/coming" ambulance crew, which is again linked to "alive/dead" for the girl, whose survival depends on quick hospitalisation).

In these examples, we trace beats of dramatic action involving all the characters, including PC's partners and enemy boss. Alternatively, analysis may be narrowed down to dramatic action of the PC. In this case, commands shouted by the partners may be reframed as contextual elements of the Set-up for beats initiated by the PC, not as NPC-initiated Interaction beats pushing the PC's action to the R reactive role. The commands / requests from the NPC partners may be classified as simple (nondramatic) actions, as they do not open any conflict about a story value; they only support the collective PC-led dramatic action.

Inaction examples

An Inaction beat, subtype: Verbal stoppage appears in *Witcher 3: Hearts of Stone* when O'Dimm comes to collect Olgierd's soul. As the demonic O'Dimm is about to destroy Olgierd, the player controls Geralt's behaviour with two options: "1. [Help Olgierd]" and "2. [Don't get involved]", with a rapidly decreasing progress bar counting down time to make the choice. Such a choice between an Interaction and Inaction contrasts with scenes offering only options of active Action / Interaction.

Another example comes from *Werewolf: The Apocalypse – Heart of the Forest* (Different Tales, 2020). As the PC is about to hang a protest banner on a wall, an NPC named Olga says "hanging the banner is a waste of time", which the PC-narrator comments on as follows: "The tone of her voice was c h a l l e n g i n g [original emphasis], and maybe I took the remark too personally". As in "Help Olgierd" vs "Don't get involved", the player gets two choices: "I challenged her" and "I let her talk", a potential beat of either Interaction or Inaction. In *Heart of the Forest,* it is not a timed choice; the game will wait indefinitely for the player's decision.

Emotion, mental, and sensory beats

Speaking about TV series, Newman observes that beats are often driven by the R, not A, where "reaction is a new bit of narrative information and is often the point of a beat."[13] He calls it "a standard narrational strategy of melodrama…, making action less significant than reaction and interaction", which happens "especially on shows centered principally around interpersonal relationships."[14] By contrast,

> Video games generally focus on manipulating and moving objects, and less commonly address the more complex interactions between humans such as friendships, love, and deceit[…]. the game form lends itself more easily to some things than to others-it is hard to create a game about emotions because emotions are hard to implement in rules.[15]

Juul's generalisation still rings true after fifteen years. The emotional and mental dimensions are not absent from games, yet containing them in beats often requires stretching the definition of dramatic action. Let us start with the general division by verbs: Mental beats driven by THINK-ing, Emotion beats by FEEL-ing, and Sensory beats by SENSE-ing. Mental beats include Decision, Discovery, and Psionics. Sensory beats may be based on Natural Sense or Super Sense. Emotion beats break into Calm down and Trigger.

The greatest challenge is the elusiveness and omnipresence of emotions. Even if we ignore the player's/audience's emotion, focusing entirely on the character's,

– in some beats, emotions *are* the story value at stake, with one character directly targeting another's emotion

– in some beats, emotions are the story value at stake in one character's internal struggle

– in some beats, the story value is not an emotion, but its change (e.g. "alive > dead") will trigger strong emotions as a side-effect

– in many beats, FEEL-ings are expressed in other forms of dramatic action, especially in SAY-ing and INTERACT-ing

[13] M.Z. Newman, *From Beats to arcs: toward a poetics of television narrative*, "The Velvet Light Trap" 2006 no. 1 (no. 58), p. 18, https://doi.org/10.1353/vlt.2006.0033.

[14] Ibidem.

[15] J. Juul, *Half-real: Video Games Between Real Rules and Fictional Worlds*, Cambridge, MA, 2005, p. 20.

– in some beats, emotions appear as possible A(ctions) for player's choice

– in some beats, they do so as R(eactions)

– in some moments (not beats), the player's choices include character's emotional responses to objects or situations which are not beats of dramatic action

– in all beats, the dramatic tension resulting from the uncertainty of outcome hangs between two emotions: fear of failure and hope for success.

How does our framework account for this complexity?

Newman's R-driven beats emerging from 'interpersonal relationships' are covered by Interaction beats (see 2.0 and 2.1). They include Interaction: Feel good/bad, which explicitly target emotions as the contested story values. Why are they not a subtype of Emotion beats? The FEEL content is there, but expressed by SAY-ing or INTERACT-ing. Social interactions in *The Sims* series, divided into Friendly, Mean, and Romantic categories, provide many examples:

INTERACT/FEEL actions: Push, Slap, Throw Drink, Give Gift, Offer Rose, Make Out, Gaze Into Eyes, Dance With, Take Picture Together, and many varieties of "Hug" and "Kiss"

SAY/FEEL actions: Confess Attraction, Whisper In Ear, Admire, Flirtatious Joke, Sweet Talk, Thrash Another Sim.

We prefer to keep it under Interaction, as its driving action type is interpersonal behaviour.

Having established this, we attempt to capture three other situations:

1) Emotions triggered as side-effects of other story values getting turned may be listed as additional value changes in the O of the story beat. If the character loses a loved one in battle, we expect a value change of "happy > sad" or "in love > in despair", but it is not directly at stake in the beat. The beat was about "active threat/eliminated threat" and "winning/losing", with A "fighting" + R "fighting" making it an Action: Physical beat. The fact that its O will additionally change some emotion values is irrelevant to beat classification. This may happen in any beat type.

2) The category of Emotion beats only includes internal struggle between conflicting emotions and desires. Like in Interaction: Feel good/bad, emotions *are* directly targeted as story values. An example is trying to pick up the courage to overcome fear (value: "afraid > unafraid"). Unlike Interaction, it happens inside the mind, not in interpersonal communication.

3) Emotional responses to non-beats are not driven by dramatic action, so they are non-beats, too. Getting scared by an object or accidental event does change the value of "unafraid > afraid", but it is a R (reaction) without an A or a G. It may be a meaningful dramatic moment, though, and may lead to different narrative and gameplay Outcomes.

See 3.2 for more information on Emotion beats and emotion-based dramatic moments.

Mental

The most regular Mental subtype is Psionics: the use of mental superpower as A to achieve G, with the target's mind potentially resisting (R), the O being success or failure. Example: the "Dominate" power in *Vampire: The Masquerade – Bloodlines* (2004) and *Bloodlines 2* (forthcoming).

The Decision subtype is a tougher nut to crack. First of all, Decision as a central dramatic action should not be confused with choice-making in other beat types. In any beat, when the character chooses what to do, say, think, feel, or sense, making the choice may be called a decision. Yet, it only precedes another form of action that will drive the beat. It only qualifies as a Decision beat if the goal (change/protection of a story value) depends on making up one's mind. This typically happens when the Set-up presents the character with a puzzle to be solved through cognitive effort, or with a dilemma between conflicting values.

Decision-driven beats are less dramatic in that they do not have a counteracting opponent; the struggle is internal. It only follows the GARO model if we accept the character's own doubts or conflicting reasons/values as the opposing R. *The Wolf Among Us* (Telltale Games, 2013) contains a perfect example: the choice whether to go to Toad's apartment or Prince Lawrence's. Both are presented as urgent. The camera zooms in on the upper body of the player character as he is standing on the sidewalk between visual representations of his mental image of the two destinations. He looks to the right, as the player can hear again the audio of Toad's call for help, then to the left, with analogical audio reminding of the other visit. The narrative, the visual, and the audio come together to highlight that this is an important choice. Once the player decides, there is no opposing R force to resist. But it is the decision-making process where the A (desire to go to Toad's place) clashes with R (desire to go to Lawrence's). This is in line with Dunne's definition of "inner-life beats."[16] If it is difficult to tell which of two opposing desires is A and which is R, it may be decided by pure chronology: the one that emerges first becomes the A.

The Discovery subtype suffers from the same problem as Decision beats: no discernible R. An attempt to "examine" or "inspect" or "identify" something is obviously an A, but is it dramatic or simple? It depends on the relation of A to O. If a closer examination of the room, object, or body provides detailed information automatically, this would be a "simple" (nondramatic) action. We may classify it as a dramatic story beat only if O is uncertain (i.e. inspection may fail), and the discovery (or lack thereof) is consequential to another story value (other than just the "unknown/known" of the information in question). Physical acts (touching, moving, dismantling objects) in the

[16] W. Dunne, op.cit.

course of inspection are secondary; they do not change classification to Action: Physical beat. An example from the *Cyberpunk 2077* trailer:

2:25 Mental: Discovery
G: to check if the unidentified body is the target of the rescue mission / A: PC inspects the body / R: no resistance sensu stricto, only the possibility to be mistaken / O: PC decides this body is not their target. Had this inspection identified the corpse as the girl they were trying to rescue, their mission would have failed. Thus, important "dead/alive" (for the kidnapped victim) and "fail/succeed" (for the mission) story values were at stake.

Another example is the puzzle in "The Sunstone" quest in *Witcher 3*, which requires the correct alignment of light beams reflected by mirrors. Re-aligning the mirrors is a series of manual actions, but they are nondramatic: you succeed automatically. The actual challenge in this action is to find the right combination of elements. Interestingly, this Mental beat may be either Decision or Discovery-based, depending on how the player directs Geralt's activities. It will be Mental: Decision if the player (and by extension, Geralt in the storyworld) solves it by analysing, calculating, and deciding; or Mental: Discovery if s/he does it by random trial-and-error.

To complete the picture, we need to acknowledge moments of Discovery that are not based on dramatic action. When a character accidentally hears or comes across a piece of evidence that makes him/her realise a shocking truth, this is not a purposeful "Discovery" action, nor is there an opposing reaction. Mere reading documents or overhearing a casual conversation would be a simple - not dramatic - action, however powerful the effect (Outcome) of the revelation may be. In other words, dramatic moments do not always need dramatic action.

Emotion

As explained in 3.0, emotions linger over dramatic tension of all A+R confrontations, may arise in response to the O (outcome) of any beat type, etc. Does a "pure" FEEL-ing ever exist, or can be observed, in other ways than manifested through SAY-ing or INTERACT-ing in Interaction beats? In *The Sims,* it can only be found in "Simulated Emotions" social trait chip for plumbots: it is called Have a Good Cry. Still, it is difficult to classify it as a dramatic action. Merely experiencing emotions is a simple action. The same applies to micro-scale FEEL-actions/reactions afforded to players as emotes / avatar animations in multiplayer communication. For instance, emotes in *World of Warcraft* include /amazed, /bored, /confused, /cry, /disappointed, /fear, /glad, and more of the kind (alongside many FEEL/SAY and FEEL/INTERACT ones; see 3.0).

For his talk at GamesLit 2018 conference, Mochocki searched for examples of pure FEEL-actions driving story beats, especially those

granting the choice of FEEL to the player. Even with help from seasoned narrative designers, only a few examples have been found. Artur Ganszyniec pointed to the interactive fiction game *80 Days* (Inkle 2014); Joleen Blom (at GamesLit 2018 conference) to *Super Princess Peach* (Nintendo, 2005). Dipannita Ghosh and Rajat Mishra at GamesLit 2019 mentioned examples found in indie games adapting plots from Indian myths. A new interactive fiction from 2020, co-designed by Ganszyniec, exemplifies both subtypes of our dramatic Emotion beats "Calm down" and "Trigger":

> **Calm down:** the character takes conscious effort to pacify an emotion, when letting it loose would have unwanted consequences. Think of werewolves trying to stay calm when anger would trigger the monstrous transformation, or unskilled magic-wielders trying to not give in to fear when it would unleash uncontrolled mayhem.
> **Trigger emotion:** conversely, the character struggles to incite a specific emotion in him/herself. To lift a curse that will only be lifted when the character learns how to love; to build up anger that will trigger a berserker rage; to incite fear to trigger a dormant superpower.[17]

Speaking of werewolves, we point to *Werewolf: the Apocalypse – Heart of the Forest*[18] for multiple examples of Calm down and Trigger. The protagonist, Maia, has numerical score of Rage and Willpower, whose interaction reflects the internal struggle between rising anger and the desire to control it. Choices given to the player in the clickable menu often include 'giving in to rage' versus 'keeping control'. Sometimes the 'Calm down' choice costs one point of Willpower.

For instance, Maia approaches a peace-minded NPC named Kornel with her Rage score 3/3, and admits her anger at loggers cutting down the forest. Kornel says "And I think you know quite well that anger doesn't really get shit done". The player has two response options: "I didn't agree", which comes at no cost, and "I knew that", which will cost a Willpower point, and will bring the Rage score from 3 (High) to 2 (Balanced). If the player chooses "I knew that", the subsequent text reads: "///BALANCED>>> I smiled back. Somehow being around him made me feel more relaxed". The "I knew that" choice was openly marked as sensitive to the "HIGH" level of Rage: it is because of the raging emotion that it needed an exercise of will to agree that anger was not the answer. Had Maia entered the scene with a "Balanced" (=2) or "Low" (=1) Rage, her options would have been different.

This interplay of Rage and Willpower mechanics strongly supports the interpretation of Calm down as a confrontation-based dramatic 'inner-life' beat, with A + R being the character's opposed desires. On the level of player's interface, the choice is as simple as one mouse click, the effect of which takes place automatically. But the story beat is character-centred, and from Maia's perspective, the

[17] M. Mochocki, R. Koskimaa, forthcoming.

[18] Werewolf: the Apocalypse – Heart of the Forest [interactive fiction game], Different Tales 2020.

condition of uncertain outcome is met. The very fact that the player can choose between 'rage' or 'suppress rage' makes the outcome uncertain for Maia.

Analogically to dramatic moments of Discovery (see Mental beats, above), stories may include moments when the character sinks into intense emotion simply reacting to a static situation, not to an A+R confrontation. When a character enters a room and finds a horrid crime scene, the shock, fear or disgust does not directly stem from a dramatic A+R beat. There is no A, as walking into a room was a simple action (non-dramatic). There is no R either; the emotional reaction with a small "r" is only a reaction in the general meaning of the word, not as a component of the story beat where R is an **opposing** force that resists A. We may call it a dramatic moment, but not a beat of dramatic action sensu stricto.

Nevertheless, such moments of intense Emotion, Decision, or Discovery should be included alongside dramatic action in mapping the character's dramatic journey. In videogames, they may be particularly important when the type of emotional R depends on player's ludic choice, even more so if the choices lead to different Outcomes, influencing the flow of events.

Sensory

Examples of Sensory beats, subtype: Super sense, are found in any *Witcher 3* scenes when the player uses the gameplay mechanic called "witcher senses" to track by smell or follow footprints. G: usually is to find a person or monster / A: = tracking by smell or visual traces / less-evident R may be found in environmental factors that are slowly eroding the traces / O: the target is or is not found.

As we wrote in Section 1.0 above, in unclear situations with non-existent R (GA_O instead of GARO), we may classify GA_O as a story beat if the A challenges a significant story value in its G, and the resulting O is uncertain.

Table 1. Categories of story beats and corresponding verbs

Story Beats	Form (verb) of dramatic action
Action beat – physical – magical – technical	DO
Interaction beat – feel good/bad – convince – find out – change status	SAY; INTER-act
Emotion beat – calm down – trigger emotion	FEEL

Mental beat – decision – discovery – psionics	THINK
Sensory beat – natural senses – super senses	SENSE
Pause/Inaction beat – verbal stoppage (pause/refusal to speak) – physical stoppage (pause/refusal to act)	(NON)

Player/avatar's action in game studies

Having presented the story beats framework in 1.0 to 3.0, we now wish to contextualise it in game studies. Many now-classic studies from the 2000s frame the narrative content (and structure) of videogames as one layer of rule-based systems. Salen & Zimmerman[19] write about "atomic structures of games as representational systems, linking together signification, simulation, and storytelling" across chapters Games as the Play of Meaning, Games as Narrative Play, and Games as the Play of Simulation. Juul's[20] notion of half-reality / half-fictionality highlights the dualism of real rulesets (governing player actions) alongside fictional narratives (with character actions). Galloway, defining videogames through "actions […] active participation of players and machines,"[21] separates the nondiegetic layer of rulesets, hardware and interface from the diegetic one, where "[t]he diegesis of a video game is the game's total world of narrative action."[22] In Björk & Holopainen,[23] diegetic *Narrative Structures, Characters, Game World,* and *Cutscenes* are among game design patterns alongside non-diegetic game elements and components. Moreover, many patterns may apply to non-diegetic player behaviour, as well as to diegetic characters; these are primarily found in the categories "Actions and Events", "Goals", and "Social Interaction". Let us consider the key elements in more detail.

Characters

Befitting the nature of story beats as units of character-centred dramatic action, videogame characters "participate in both modes, the narrative and the dramatic,"[24] The correspondence of a player's action in the game interface and character's behaviour in the imaginary world allows for ludonarrative unity: "diegetic operator act" in Galloway's four-part classification of gamic action, spanning between machine/operator and diegetic/nondiegetic. They "are diegetic because they take

[19] K. Salen, E. Zimmerman, *Rules of Play: Game design fundamentals*, Cambridge, MA, 2004.
[20] J. Juul, *Half-Real: Video Games*…
[21] A.R. Galloway, *Gaming: Essays on algorithmic culture*, Minneapolis 2006, p. 2.
[22] Ibidem, p. 8.
[23] S. Björk, J. Holopainen, *Patterns in Game Design*, Hingham, MA, 2005.
[24] S. Egenfeldt-Nielsen, J.H. Smith, S. Tosca, *Understanding Video Games: The essential introduction*, New York 2008, p. 178.

place within the world of gameplay; they are operator acts because they are perpetrated by the game player rather than the game software or any outside force."[25]

Importantly, Galloway highlights the representational-performative aspect of such an act: a dromenon representing a fictional narrative through enactment in action.[26] He links it to the forefathers of game studies, Huizinga and Caillois; we will look upon today's enactivist narratology by Caracciolo.[27]

Diegetic operator acts are perhaps the most interesting area of investigation. However, the transmedial story beat framework also covers "machine diegetic acts": actions and reactions of computer-controlled characters (NPCs), monsters, and inanimate forces, as long as these forces are 'agents' initiating actions/reactions. Also, the framework covers the player character's actions as represented in computer-controlled cutscenes: they "are outside gameplay, but they are not outside the narrative of gameplay."[28]

Cutscenes 'steal' the performative power from the player, removing the enactment-in-action required in Huizinga's ritualistic dromenon. However, according to enactivist narratology, even though viewers/readers are not controlling the character's action in film/fiction, they simulate it mentally[29] and feel as if they were.[30] In any narrative genre, mental enactment of character-centred dramatic action is game-like and (thus?) ritual-like.[31] In videogame cutscenes, this is just one step away, one moment from player-controlled enactment in gameplay.

Goals/conflict

Salen & Zimmerman highlight the parallelism of story goals and game goals, which "not only help players judge their progress (how close are they to winning), but also guide players in understanding the significance of their actions within a narrative context."[32] Goals are often defined in conflict, which "in a game is one way narrative events advance". Thus, Salen & Zimmerman's systemic approach to game narratives is compatible with the principles of dramatic narrative:

> conflict presumes a struggle between opposing forces, in a game there should always be some element that works against player success, an element that acts to try and ensure the failure of the player. This role is often

[25] A.R. Galloway, op.cit., p. 23.
[26] Ibidem, p. 2.
[27] M. Caracciolo, *The Experientiality of Narrative: An enactivist approach*, Berlin – Boston, MA, 2014; idem, *Playing home: videogame experiences between narrative and ludic interests*, "Narrative" 2015, no. 3 (23); idem, *Ungrounding fictional worlds. An enactivist perspective on the "Worldlikeness" of fiction*, [in:] *Possible Worlds Theory and Contemporary Narratology,* eds. A. Bell, M.-L. Ryan, Lincoln 2019, pp. 113–131.
[28] A.R. Galloway, op.cit., p. 11.
[29] M.-L. Ryan, *From possible worlds to storyworlds. on the worldness of narrative representation*, [in:] *Possible Worlds Theory and Contemporary Narratology*, eds. A. Bell, M.-L. Ryan, Lincoln 2019, pp. 62–87.
[30] M. Caracciolo, *Ungrounding Fictional Worlds*…, pp. 157–176.
[31] L. Alexander, *Genre*, [in:] *The Routledge Companion to Imaginary Worlds*, ed. M.J.P. Wolf, New York 2018, pp. 256–273.
[32] K. Salen, E. Zimmerman, op.cit.

> taken by a villain character, a competing player or team, or may be embodied in the game system as a whole. From a narrative perspective, this element motivates and contextualizes player action […]. The conflict of a game infuses every moment of its play. To maximize the narrative play in your game, you must pay close attention to how the conflict in your game is narrativized.[33]

They trace narrative structures on the macro (story) and micro level, as we do scaling up from beat to scene to act to story. The micro level, as in Ganszyniec's[34] model uniting story with gameplay, assumes that "core mechanics represent the essential moment-to-moment activity of players."[35] which gets "narrativized."

In connection to text adventure games (Interactive Fiction), Aarseth coined the concept of *intrigue*, as parallel to the narrative of the game. Intrigue is "a secret plot in which the user is the innocent, but voluntary, target […], with an outcome that is not yet decided."[36] Intrigant is the agent who is responsible for the intrigue and is to be separated from the actual opponent, like a monster in a fight. In some of the cases above, where there is no clear opponent but something that challenges the player, we can refer to the intrigant. Aarseth, too, has borrowed his concept of intrigue from drama theory.

Goals are often deeply nested, with one action serving multiple goals, e.g. the immediate goal to break through a door serves the interim goal of eliminating an enemy who hides there, which in turn serves the purpose of rescuing a kidnapped person (mission objective; equivalent of scenic objective in Dunne[37]).

Mechanics

Moment-to-moment gameplay is the level of the story beat, according to Ganszyniec,[38] Yorke[39] and other narrative designers we cite in the previous paper (forthcoming). We have pointed to action verbs - such as running, shooting, begging, intimidating - as common denominators for games and stories, as they are used by game designers/scholars to describe mechanics, and by narrative designers to identify action in story beats (e.g. McKee[40]). Salen & Zimmerman find this essential to the experience of narrative in games:

> core mechanics create patterns of repeated behavior, the experiential building blocks of play. Designing moment-to-moment play as narrative play means paying attention to exactly what players are doing in your game, how their choices and outcomes are represented, and how these moments fit into larger narrative frames.
>
> Recognizing games as narrative experience means considering them not just as bits of plot that are arranged and rearranged through interaction,

[33] Ibidem, pp. 387–388.
[34] A. Ganszyniec, op.cit.
[35] K. Salen & E. Zimmerman, op.cit., p. 389.
[36] E. Aarseth, *Cybertext: Perspectives on ergodic literature*, Baltimore 1997, p. 112.
[37] W. Dunne, op.cit., p. 93.
[38] A. Ganszyniec, op.cit.
[39] J. Yorke, op.cit.
[40] R. McKee, op.cit.

> but instead considering them as an ongoing activity in which a player engages with a core mechanic to make meaningful choices and explore a space of possibility.[41]

Parallels between verbs for player action and verbs for narrative-building are of special interest to videogame narrative designers. [42] Nonetheless, it is worth repeating that player's engagement with game mechanics is not limited to player action. Mechanics understood as "methods invoked by agents, designed for interaction with the game state" are "available both to human and artificial agents"[43]. NPCs, monsters, inanimate forces: they all may be vehicles of mechanics-driven dramatic action/reaction in beats.

The importance of verbs is reflected in our classification of story beats types, defined as they are by DO-ing, SAY-ing, THINK-ing, etc.

Emotional outcome

Action > outcome is the basic atom of gameplay in Salen & Zimmerman (2004). Juul's (2005) Classic Game Model assumes "a clear valorization (goal) and emotional attachment to the outcome" of player action. Goal-valorisation is a formal feature, defined in terms of potential game states resulting from the mechanics of gamic action. Player's cognitive and emotional interpretation of it as success or failure is an experiential feature. Björk & Holopainen combine them in the concept of closure:

> Closures are quantifiable and meaningful player experiences usually associated with game state changes. Closures may be associated with achieving goals but do not have to be so; a closure might instead be the point when it becomes obvious that a goal cannot be reached. Another relevant difference between goals and closures is that the goals are within the game definition and do not exist at a particular point in time. The closures are always tied to a particular point of time in the gameplay […]. goals are part of the game, closures happen when playing the game.[44]

Closures are tied to end-conditions, which "define the requirements on the game state for […] a completion of a closure;"[45] and to evaluation functions: "the algorithms used to determine the outcome of end conditions" including "terms of winning and losing."[46]

This ideally describes McKee's[47] model of the story beat: the character's action as an attempt (against reaction) to change a story val-

[41] K. Salen, E. Zimmerman, *Rules of Play: Game Design Fundamentals,* Cambridge, MA, 2004, p. 389.
[42] e.g. K. Tremblay, *Storytelling with Verbs: Integrating Gameplay and Narrative*, YouTube 2020, March 17, <https://youtu.be/ontNUxSLhb8>, accessed: 2.03.2020; B. Jaekle, *The four basics of open world storytelling*, "Gamasutra" 2018, January 4, <https://www.gamasutra.com/blogs/Benjamin-Jaekle/20180401/315969/The_Four_Basics_of_Open_World_Storytelling.php>, accessed: 2.03.2020; M. Krpata, *Verbs*, [in:] *Insult Swordfighting* 2013, September 25, <http://insultswordfighting.blogspot.com/2013/09/verbs.html>, accessed: 2.03.2020.
[43] M. Sicart, *Defining game mechanics*, "Game Studies" 2008, no. 2 (8), <http://gamestudies.org/0802/articles/sicart>, accessed: 2.03.2020.
[44] S. Björk & J. Holopainen, op.cit., p. 21.
[45] Ibidem, p. 22.
[46] Ibidem, p. 23.
[47] R. McKee, op.cit.

ue from positive to negative or vice versa. In videogames, story values are encoded in game states. Whatever is required in the narrative to complete the action/reaction confrontation is an end condition: what must happen for the confrontation to come to an end. Frequently, it is when the acting character successfully completes the action, or has the action thwarted by a reaction, or abandons the attempt. Another end condition may be a limited amount of time.

When the confrontation has ended (end conditions being met), the action is judged as successful, or failed, or partially successful. In game terms, evaluation functions measure the achieved game state, triggering a corresponding outcome; it may be as definitive as winning or losing, or may come in the form of rewards (e.g. scores) and/or penalties. It may also be as simple as scoring a point: "At the end of each atom, points are recorded, and the winner of the game is the one with the most points at the end."[48]

In any case, the completion of the confrontation brings Closure to in-game action/event, which doubles as Resolution in narrative terms. The player's emotional attachment to action's outcome[49] – winning, losing, scoring – runs parallel to audience's emotional response to story values being changed, or failing to be changed.[50]

Coming full circle, from rule-based game systems back to general transmediality, let us consider story beats as Bogost's 'unit operations'. As small-scale discrete units, they "strive to articulate both the members of a particular situation and the specific functional relationship between them,"[51] and include "abstract routines for characters and objects in the world."[52] The story beat realises this as follows:

– The situation includes two members, an acting agent and a reacting agent, at least one of which is a character (human, humanlike, or any somewhat-sentient being capable of acting and experiencing).

– Their relationship is antagonistic: one acts towards a desired result, the other counter-acts or resists.

– Their confrontation escalates to a climax, and leads to a resolution.

Unit operations "may be observed in any artifact, or any portion of any artifact, rather arbitrarily […] across expressive forms, from literature to film to software to videogames."[53] This is exactly the idea of our transmedial framework of beats as (ludo)narrative microunits.

A comment is needed on the varied degree of unit-operationality in games. In "the struggle waged between totalizing structures and componentized structures,"[54] the unit-operational logic governs the latter.[55] Componentised ones invite "modes of meaning-making that

[48] G.S. Elias, R. Garfield & K.R. Gutschera, *Characteristics of Games*, Cambridge, MA, 2012, p. 20.
[49] J. Juul, *Half-real: Video Games…*
[50] As highlighted by story beats theorists, e.g. McKee, op.cit.; W. Dunne, op.cit.; R. Laws, *Beating the Story*, Falcon Heights 2018.
[51] I. Bogost, op.cit., p. 14.
[52] Ibidem, p. 60.
[53] Ibidem, p. 14.
[54] Ibidem, p. 7.
[55] Ibidem, p. 59.

privilege discrete, disconnected actions over deterministic, progressive system."[56] By contrast, with its linear progression in the nested hierarchy of story/act/scene/beat, traditional storytelling builds "holistic, totalizing systems from the top down."[57] Some videogames and game genres follow this model, e.g. point-and-click adventure games like *Syberia*, where the narrative system is pre-designed holistically, and discovered step by step. In Bogost's terms, this is system operations. In unit operations, we have "systems as assemblages of units,"[58] whose example in videogame narratives is *The Sims: Hot Date.*[59] Juul names it 'games of progression' versus 'games of emergence.'[60] *Open-world RPGs like Witcher 3* combine the system-operational progression of quests with unit-operational emergence of world exploration.

Where the game positions itself on the scale between progression and emergence determines the importance of the story beat in relation to the story. In top-down linear narratives, the story beat only executes a step in pre-determined plot, a step of minor importance in most scenes, more important only in climaxes of major and final events. In emergent, unit-operational narratives, it is the flow of story beats that shapes narrative progression.

Unit operations and anatomy of choice

The procedure of Galloway's 'diegetic operator acts', when the character's action is triggered by the player's action, may be further described in Salen & Zimmerman's[61] five-step 'anatomy of a choice'.

Set-up
1. What happened before the player was given the choice?
2. How is the possibility of choice conveyed to the player?

Confrontation (Action)
3. How did the player make the choice?

Confrontation (Reaction)
4a. What is the result of the choice?

Resolution
4b. How will it affect future choices?
5. How is the result of the choice conveyed to the player?

Salen & Zimmerman highlight the difference between 2. and 5. as "external events" that are represented to the player in the game interface (screen, audio, hardware game controls), and 1.,3.,4. as "internal events" that take place in the game state machine. They come

[56] Ibidem, p. 3.
[57] Ibidem, p. 49.
[58] Ibidem, p. 7.
[59] Ibidem, p. 86–89.
[60] J. Juul, *The open and the closed: game of emergence and games of progression*, [in:] *Computer Games and Digital Cultures Conference Proceedings*, ed. F. Mäyrä, Tampere 2002, pp. 323–329.

together in narrative designer Ben Jaekle's words: "**Gameplay is Story.** The player's choices are the character's choices."[62] Analysis of player choices in story beats, exemplified by Murray's MSc thesis,[63] is by all means a fruitful area of investigation. Co-presence of multiple goals – and choice of actions leading to various potential outcomes - may be analysed with Mawhorter's "choice poetics."[64]

To broaden the scope, let us consider if it also works vice versa: the character's choices imagined as the player's. Does it make sense to apply the anatomy of choice to 'diegetic machine acts', i.e. actions taken by the player character in cutscenes, and by NPCs in general? In the literal sense, no human choice is being made, with events determined by algorithms. However, if we replace 'player' with 'character' as choice-maker, the procedure of the story beat remains. This is the point of "narrative-driven" video games,[65] focused as they are on fictional characters to which players "attribute consciousness."[66] Whenever it is an actual story beat (with a goal identified in the set-up, action clashing with opposing reaction, and the resulting outcome), then the character's decision to act is this character's choice in the storyworld, whether player-controlled or not.

The continuity of choice-making between gameplay and cutscenes finds support in Alexander's anthropological genre theory, which assumes that all action in narrative genres "manifests the dynamic metaphors of choosing the right turn in the story's cognitive maze."[67]

> The protagonist - avatar — a shared, projected alter ego of the audience — makes complex decisions and initiates steps, considering variable options for the paths taken, limited by each genre's conventions. As expected, the audience, familiar with the genre and aware of possible steps, is eager to follow the hero's moves, in "his shoes," calculating at once how to act wisely in this predicament.[68]

Let us not be misled by Alexander's use of the word 'avatar'; she does not speak of videogames, but rather, she applies game metaphors to narrative genres in any medium. To her, "The game-like foundation of genres originates from ritual, which gave birth to interactivity as riddle-saturated challenges, inseparable from ritual structure,"[69] and it is "Pathfinding and pathmaking […] that define the intrinsic link between ritual, genre, and game."[70]

[61] K. Salen, E. Zimmeran, op.cit.
[62] B. Jaekle, op.cit.
[63] J.T. Murray, *Annotating Player Experience in Telltale Games The Wolf Among Us*, MSc Thesis, UC Santa Cruz, Santa Cruz 2018, <https://escholarship.org/uc/item/69n1d6tp>, accessed: 2.03.2020.
[64] P.A. Mawhorter, *Artificial Intelligence as a Tool for Understanding Narrative Choices*, PhD Diss., UC Santa Cruz 2016, <https://www.cs.hmc.edu/~pmawhorter/research/dis/artificial_intelligence_as_a_tool_for_understanding_narrative_choices-Mawhorter-2016.pdf>, accessed: 2.03.2020.
[65] M. Caracciolo, *Playing home…*
[66] Idem, *The Experientiality of Narrative…*, pp. 115–117.
[67] L. Alexander, op.cit., p. 271.
[68] Ibidem, p. 266.
[69] Ibidem. p. 271.
[70] Ibidem. p. 266.

The difference between physical enacting of avatar's action via game controllers, and witnessing his/her action in cutscenes, is even more reduced by embodied affective responses. This goes beyond the early videogame narratology[71] that rejected the passivity of cutscenes (and film, fiction, drama) on the grounds of cognitive activity in interpretation, memorisation and anticipation. Enactivist embodiment is attributed to "motor resonance": the fact that mere observation of somebody performing an action (or imaginary act of ourselves performing it) triggers partially the same brain and hormonal activity as actual performance. Readers/viewers of fiction "internally and unconsciously enact the characters' movements"[72], shaping "our evaluative enactments on the basis of our sensorimotor skills (which are derived from our bodily experience of the world)."[73] To Bogost, these "mirror neurons" phenomena "suggest ways of understanding units of representational meaning that do not necessarily have recourse to narrative"[74], more like a direct transfer of bodily experience. Yet, to narratologists, it is very much about narrativity.

> […] narrative has a built-in rhythmicity that involves both the representation of bodily movements and the negotiation of affective values […]. In prose narrative, these movements are a matter of semiotic representation rather than direct perception: nevertheless, our imagination of characters moving in narrative space is still to a large extent based on patterns arising from our embodied interaction with the World.[75]

The embodied affective responses are physiological, and therefore no less physical (material) than pressing buttons. This invites us to rethink the boundary between seeing and doing. Early studies on videogame storytelling emphasised the bodily aspect of thumbs and muscles operating game controls.[76] Defining diegetic operator acts as ritualistic dromenons, Galloway insists "while there is an imaginative form of the expressive act within the diegesis of the game, there is also a physical form of the same act,"[77] so what used to be the act of reading is now the act of doing, or just 'the act'."[78] However, with some exceptions, such as haptic controllers, "the symbolic control of keys, controller buttons, and thumb sticks" has "no direct, mimetic relationship between the actual movement performed by the player and the corresponding movement executed by the avatar."[79] It is likely that narrative involvement with "the *alterbiography* […] generated by the individual player as she takes action in the game"[80] is much more

[71] e.g. J. Newman, *Videogames*, London 2004, p. 94–98.
[72] M. Caracciolo, *Ungrounding fictional worlds…*, p. 124.
[73] J. Alber, *Logical contradictions, possible worlds theory, and the embodied mind*, [in:] *Possible Worlds Theory and Contemporary Narratology*, eds. A. Bell, M.-L. Ryan, Lincoln 2019, p. 170.
[74] I. Bogost, op.cit., p. 70.
[75] M. Caracciolo, *Ungrounding fictional worlds…*, p. 122–123.
[76] J. Newman, *Videogames…*, p. 141.
[77] A.R. Galloway, op.cit., p. 25.
[78] Ibidem, p. 2.
[79] G. Calleja, *In-Game: From immersion to incorporation*, Cambridge, MA, 2011, p. 63.
[80] Ibidem, p. 115.

reliant on the 'mirror' or 'motor' response fired up in the brain by identification with the audiovisual and textual representations of the avatar.

"People move their hands, bodies, eyes, and mouths when they play,"[81] but they do not freeze motionless for cutscenes. They move eyes, smile, flex muscles, clench or unclench fists, jump on the chair when jumpscared. Also, the less-visible bodily responses - heart rate, breath, adrenaline rush – do not differentiate between gameplay and cutscene. This is not to deny the importance of player's kinaesthetic agency in the overall gameplay experience, only to emphasise that bodily action-response is not limited to it.

All in all, if story beats are transmedial, they can be found in non-gameplayed representations just as well as in operator acts, in cinematic cutscenes as well as in the cinema, in textual descriptions no less than in literature, in the player character's actions, and in those taken by NPCs. In narrative-driven video games, Caracciolo insists, gameplay-based uncertainty of outcome tends to overlap closely with the narrative suspense. If the player sends the character down a risky ladder, the player's uncertainty about the failure/success of in-game action cannot be separated from the narrative interest in how it will end for the character.[82]

Having established this, let us return to procedural unit operations. The above-described components, characters + goals/conflict + mechanics + emotional outcome, all meet in the story beat, from Set-up (beginning) to Confrontation (middle) and Resolution (end). In terms of the GARO model,

1. (G) Goal/Conflict is established in the Set-up / Stimulus. The goal is to change the value of one (or more) parameters in the game state.

2. (A) + (R) The core of the story beat, which is the Action/Reaction pair (Conflict), is governed by Mechanics.

3. (O) The Outcome of the Action is the story beat's Resolution, bringing an emotional Closure when the challenged story value changes or remains.

There is further variety in the structure of the Action+Reaction (A+R) pair with regard to player control (operator vs machine); and to the relative power of A in relation to R. Sometimes, it is R that matters more, especially when it is operator-controlled when A is coming from the machine.

Diegetic operator act (A) is the core of narrative videogames: player's action directly controls avatar's A, which meets with R coming from a computer-controlled opponent (an NPC, monster, or inanimate force). Typical example: attack an enemy.

Diegetic operator act (R) reverses the above: A comes from a computer-controlled agent, and the player's action controls the avatar's R. Typical example: defend against an attack.

[81] A.R. Galloway, op.cit., p. 4.

[82] M. Caracciolo, *Playing home…*, p. 236.

Diegetic machine act (A / R) are actions / reactions of computer-controlled objects paired with diegetic operator acts in the above examples. In cutscenes, machine acts include all actions / events, including those of the player avatar, as the avatar temporarily becomes computer-controlled like an NPC.

Nondiegetic operator act (A) may also translate to a diegetically-meaningful avatar's action. Galloway defines them as "actions of configuration […]always executed by the operator and received by the machine."[83] For example,

> In Final Fantasy X the process of configuring various weapons and armor, interacting with the sphere grid, or choosing how the combat will unfold are all executed using interfaces and menus that are not within the diegetic world of the game. These activities may be intimately connected to the narrative of the game, yet they exist in an informatic layer once removed from the pretend play scenario of representational character and story.[84]

On the one hand, configuring equipment in a nondiegetic menu may easily be translated to the character trying on suits of armour, packing / unpacking bags, or manually crafting items from components. Based on the nature of the narratively imagined activity, it would be classified as "physical" or "magical" action (see 2.0). It is questionable, however, if such actions could function as A or R in story beats. A beat requires a confrontation between A and R, which does not exist in configuration actions that meet no resistance and automatically succeed (or automatically fail, given the carrying capacity limits or level requirements of certain items).

Multiple actors further complicate the structure. If the beat includes more than two acting agents, we may have one A with multiple Rs, or several As with one R, or the same A or R jointly performed by several actors. The most complex option of multiple simultaneous As paired with multiple Rs may be relatively easy to deal with by separating into several simultaneous beats.

Conclusion

In this article, we have taken a look at story beats in video games. We had defined story beats in a transmedial way,[85] making the concept applicable to stories in different media, but here the focus has been on the specifics of video games. Story beats are basic units in dramatic action, moments where story-based values are changed (or there is an attempt to change those values) and there is an opposing force or instance to be detected. This is captured in the Goal-Action-Reaction-Outcome model, where the action (and choices behind actions) may be performed by the player or game characters. The GARO model is adjusted to fit into the unit operations framework.[86]

The framework of story beats representing five layers of experientiality – action, interpersonal interaction, emotion, thought, and

[83] A.R. Galloway, op.cit., p. 12.
[84] Ibidem, p. 14.
[85] M. Mochocki, R. Koskimaa, forthcoming.
[86] I. Bogost, op.cit.

sensory perception – is a measuring stick for the richness of human experience represented in videogame narratives.[87] The most obvious approach would be close-up examination of beat structures (unit operations) in particular scenes, the kind of video games 'micropoetics' heralded by Kubiński: "close textual interpretations, focused on the detail and scrupulously catching significant nuances at various levels of cultural texts."[88] In addition to such close readings, a holistic analysis of entire games will reveal:

1. How many of the five beat types (and their subtypes) are used in the game. Higher diversity of beats will reflect a higher richness in the representation of the character's experience.

2. How they are distributed between player-controlled 'diegetic operator acts' and computer-controlled 'machine acts'. Higher/lower variety of beat types offered to the player's choice is a parameter for player's narrative agency with regard to said richness.

3. Which beat types are dominant, which are rare, and whether it changes between different parts of the game.

4. How much the game narrative is structured by the logic of unit operations and system operation.

5. What emotional rhythm emerges from the pacing of dramatic action in the beats.

6. Whether the pairings of player's action and character's behaviour create ludonarrative unity or dissonance.

7. Which story values are dominant, frequent, and rare in the game, and how characters are related to them (as in Murray's analysis of *The Wolf Among Us*[89]*).*

8. How the story values reflect general and culture-specific ethical and moral values (e.g. the five moral foundations defined by Haidt[90]).

9. How dramatic beats (of action/reaction) coexist with dramatic moments (reactions / discoveries not based on A/R confrontations).

There is an unavoidable degree of arbitrariness in isolating story beats, with their negotiable granularity between single and serial actions, and sometimes unclear boundaries between simple and dramatic action. Moreover, a narrow focus on the protagonist will generate fewer story beats than a broad focus on all acting characters. This seems a disadvantage; different researchers may list story beats somewhat differently, which is not to say that the process would be wholly arbitrary. Rather, it is a question of flexibility regarding alternative priorities in targeted focusing, zooming in or out as best serves the research purpose.

[87] See M. Fludernik, *Towards a "Natural" Narratology*, London – New York 2005; and M. Caracciolo, *The Experientiality of Narrative…*, for character's experientiality as a defining feature of narrativity.

[88] P. Kubiński, *Micropoetics and video games*, „Forum of Poetics" 2017, no. 9, p. 65.

[89] J. Murray, *Annotating Player Experience in Telltale Games The Wolf Among Us*, MSc Thesis, UC Santa Cruz, Santa Cruz 2018, <https://escholarship.org/uc/item/69n1d6tp>.

[90] J. Haidt, *Moral psychology for the twenty-first century*, "Journal of Moral Education" 2013, no. 3 (42), pp. 281–297.

In the three-fold scope of game studies – game, player, culture (aka formal, experiential, and cultural systems) – story beats may be investigated on all levels:

1. Formal – as formal narrative affordances embedded in the rule system (mechanics), and in the structures of narrative content.
2. Experiential – how these affordances are used and experienced by players; also, how players experience computer-controlled beats.
3. Cultural – how story beats in videogames correspond with beats in other media; and how they may reflect broader social, economic, ideological, and other forces.

Some games will only use Action beats, some may explore the full richness of all five 'experiential modules', and many will fall in between. Some games will limit player-controlled beats to Action and verbal Interaction (speech), relegating Emotion and Thought to cutscenes. The variety of story beats in the whole game, and especially in player-controlled actions, may be studied as narrative affordances. General tendencies can be revealed in entire genres, such as the FPS or dating simulator. These are just a handful of potential developments of this project.

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