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THE MAKING OF AN INTERACTIVE DIGITAL NARRATIVE – *INSTORY*

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ABSTRACT

This paper describes the problems that had to be faced during the elaboration of an interactive narrative for the *Instory* project (http://img.di.fct.unl.pt/InStory/) directed by Prof. Nuno Correia. The project had the goal of defining and implementing a platform for mobile and cinematic storytelling, information access, and gaming activities, in Quinta da Regaleira (World Heritage) in Sintra, Portugal. The system is driven and validated by a set of fictional threads that are centred on the exploration of physical spaces (the real world, in real time). The development of a narrative was naturally constrained by the environment which raised some practical and theoretical issues in what regards the literary strategies involved. *InStory* received the PMA Award (2006) for best Portuguese multimedia project web– mobile.

INTRODUCTION

The *InStory* project had the goal of defining and implementing a platform for mobile and cinematic storytelling, information access, and gaming activities (Correia et al. 2005a), initially using a PDA and later mobile phones, in Quinta da Regaleira (World Heritage) in Sintra, Portugal.

Technically, the platform has a quite supple computational architecture that integrates heterogeneous devices, different media formats and computation support for different narrative modes and gaming activities (Martins et al. 2005).

However, the making of a first interactive narrative for the above project, in the terrain – where the fictional and real universes blend – raised a series of theoretical, literary and narratological issues, shaking the concepts and terminology that have been the basis of digital fiction studies.

The physical space in Regaleira is very rich and complex. It was built in the historical centre of the village of Sintra in the early nineteenth century. It materializes the mythical and magical dreams of its deceased owner, António Augusto Carvalho Monteiro (1848– 1920), depicted by the art of his friend the Italian architect and theatre scenographer Luigi Manini (1848– 1936). The space has museological characteristics, embodying the so called Portuguese Romanticism, having become a symbolic tribute to some famous epochs and figures (the Templar's, Dante, our epic Camões, etc.). It has a palace-museum, a chapel, and gardens full of artistic and mythical elements – wells, caves, lakes, towers, sculptures, paintings, tiles, etc. This vast scenario had to be used as a necessary map in which the events of the story would have to take place.

Figure 1. Quinta da Regaleira, Sintra

The project explores the social aspect of shared narratives and activities, having in mind that technology can provide new innovative approaches to social participation in different types of events, being it artistic or cultural (Correia et al 2005b).

The idea of an interactive format for mobile storytelling was to guide the user through her visit to Regaleira. To help her map out the vast and intricate geographical area and show the thematic or historical places that could interest her most amongst the nearly 20 sites available.

Out of the geographical map emerged a web of possible virtual paths. Within this maze was selected a number of specific points/nodes where some of the paths met or intersected. In these nodes the user is allowed to change course and, at the same time, vary the type of game or narrative. For that, a multiplicity of routes has been anticipated allowing the potential multiplication of different stories. So, a basic structure was created, one that could be reproduced in several nodes, as the embryo of a future and more complex fractal structure (Holtzman 1997).

This web of possible paths could become the basic framework for the creation of a future role-playing interactive game, in a virtual environment (reproducing the existing Regaleira space), equally inhabited by avatars and/or humans. A game with a hunting narrative was developed to start with.

This practical experience with the *Instory* project has helped to clarify the way in which some of the terms pertaining to narratology can be employed – in particular the distinctions between «story» and «discourse» (Barbas and Correia 2006). This double model is presently being studied by other researchers from diverse perspectives (Young 2006). They are the trick of the trade used by writers to catch the reader's interest, and become crucial to the creation of suspense; they are also the signature of the storyteller, the gap through which creativity erupts. Concerning *InStory*, creativity lies, partially, in the route taken by the user, as an outcome of the several nodes the she chooses to cross. Partly because there is a previous set of story threads necessary to build the system, and validate it. In each spot of the terrain, the performance of the narrative sequences and general structure was tested by the members of the project.

The previous plots were centred on the exploration of physical spaces – the real world, in real time. And their development was naturally constrained by that very same environment. This interfered with other literary tools to promote the immersion of the reader-user – analepsis / flashback and prolepsis / flash-forward. In the terrain they do not exist, even if we consider the all geographical space as a huge narrative map, a kind of gigantic prolepsis in the beginning of the story.

IF AND TRADITIONAL NARRATIVE MODES

We are in the middle of the digital revolution. Computers have been being used to create stories for a very short period of time yet. Writers are experimenting with this new instrument, wobbly if we consider the pace at which computers and software change, resurfacing every two months with fresh possibilities. From the inert book the creative act transmigrated to multimodality (Nigay and Coutaz 1993), to hypermedia, a plural and very particular communication channel. The emerging mobile technologies took storytelling onto a whole new level (Correia et al 2005b).

Regarding the narrative practices, we are truly experiencing something quite new, and are not yet fully aware of all the potential it has to offer. Studies are being carried out concerning the so called Narrative Intelligence with some promising results (Mateas and Senghers 1999). Yet, the brain that humans use to fabricate stories, the strategies used to organize and transmit them, have not changed that much (Pereira 2008).

Theoretically, the new ways for telling stories are being evaluated and limited by the old traditional modes – the remains of poetics for genres, i.e. – and the most recent of the methodologies, the one that seems the most able to encompass the new needs, is narratology (Monfort 2007; Douglass 2007).

The quick development and increasing use of new media technologies demand a revision of the literary taxonomy, as well as a reconsideration of the instruments to evaluate the new productions.

Interactive Fiction (IF) – narrative or drama – has been substantially discussed as a new form of art related to AI-based experiences and narrative intelligence (Mateas and Senghers 1999). In practice, there has been a considerable technical progress in building elaborate plots and quite believable fictional characters.

However, on of the main issues about the IF theoretical framework has to do with satisfactory terminology. Cyber-artists and critics use a vocabulary borrowed from the realm of literature and film practices (plot, character, perspective, narrator), and from game author's specific language (character player, drama manager). In general it is used in an inaccurate way, without considering all the variants that enriched these concepts, such as narratological studies. From these mishandling results a multiplicity of terms and some misunderstandings in what concerns the theoretical speculations and approaches to digital fiction.

The practical experience with the *InStory* project has helped to understand and clarify the way in which some of those literary notions can be employed. It is an extreme situation in what regards the making of a mobile ID story, the exploitation of the usual narrative strategies, and the user's agency and role, using a mobile device.

Being a mobile cinematic and digital project, *InStory* is a debtor to its predecessor documentaries (Davenport 2003; 2005). The user will be able to interact with the central server, sending, receiving and asking for any kind of media elements – video, images, games, music, or messages. These elements are directly related to the environment and, in some cases, can describe scenes occurring in that same exact locale (Pan 2004) becoming a kind of posterior journalistic account. The main difference between this kind of mobile storytelling and the traditional narrative modes (oral, written, cinema, and theatre, hypertext, or even ergodic literature) results from the blending of the fictional with the real universes, and in the fact that the narrative is not utterly based on a previous script.

The user is actually experiencing the story immersed in the real world, in real time, and she has the possibility to decide which way to go. Ideally, she can choose her own actions, and her virtual characters' behaviour, select her pathway towards the outcome.

The development of the basic IF content was naturally ordained by that very same environment. So, the main restrictions, narrative wise, were physical and in direct opposition to each other – the vastness of the geographical space and the amount of information available, versus the boundaries imposed by the mobile apparatus features and screens (640x480 pixels for a PDA). Experiences made with this kind of narratives – *MIT in Pocket*, or *15 Minutes*, i.e. (Pan 2004) – give the user a task to be accomplished within a predetermined period of time. Quinta da Regaleira' terrain is very irregular, and the visibility between spots is very poor, so time could not be the motivation issue to make the user go from one place to another.

THE MAKING OF AN INTERACTIVE STORY

The ambiguity of the concept narrative has been widely discussed (Barbas and Correia 2006), having in mind the French structuralists (Genette 1996) and Linguists (Benveniste 1974), the first to propose an opposition between «story» (content plane) and «discourse» (expression plane). Both concepts were also explored by Russian formalists (Todorov 1983) and inherited by American scholars (Prince 1988). These formalistic narratological notions, normally employed as analytical tools, proved to be very useful for operational purposes.

The distinction between «story» and «discourse» could be projected over the geographical map of Regaleira in the design of the possible routes to be taken by the *InStory* user, but with some particularities.

The events («story») were allocated to some specific spots, from which the narrative was built, and had to respect the architectural and cultural motives of the geographical space. But the order of the events (the «discourse») is determined by the material route the user wishes to take. That is, the «discourse» is mainly created by the user in the moment she chooses which way to go – her creativity lies in the route taken, results from the several nodes crossed. This route also determines the length of the story, the number and variety of the episodes experienced and the locale where it ends.

Several objectives were targeted: to integrate the possible discontinuity of the fictional sequences and, at the same time, to maintain the illusion of narrative continuity; to advance the user's agency, truly allowing her to play a part in the story development and its conclusion; to have in mind that the user could abandon the story at any moment; to consider the possibility that the user might return to a spot that already been visited.

The user's progress is instigated by a number of approaches: a direct instruction via message (text, audio or image); tests, games or competitions – allowing her to accumulate or lose objects, to continue or change her course, to go up one level in the story/game and gain points; to partake a quiz with multiple choice questions. Also, to solve puzzles/enigmas that she has to decode retrieving information from the geographical spot occupied at each moment.

Theme

Having in mind all the above issues, and that *InStory* is also a mobile cinema project, it was decided to use the most obvious elements at hand in the physical space.

The close examination of the surroundings, of the architectural places (turrets, benches, wells, lakes and grottoes) together with the motifs available in the decors, suggested hunting as a first possible organizing theme. The deceased owner of Quinta da Regaleira was called Carvalho (Oak) Monteiro (Huntsman). And he had inscribed the surroundings with all the variants from the elements of his name – oak leaves, hunting scenes and wild animals. There exists a «hunting room» in the palace with birds, boars and stags; there are two huge tile panels with renaissance hunting scenes adorning the walls in the main entrance gate; a major stained glass window in the chapel depicts an old Portuguese legend about a horseman – Dom Fuas Roupinho – chasing a stag.

The relevance of the hunt theme opened an easy and promising way. It could include all the potential routes. It provided a modest beginning and allowed future expansions into higher levels of complexity. It could even include posterior hunting motives: treasure hunt, ghost stories, or even a detective story.

Following the tale morphology theory (Propp 1969), the first incentive for action can be a need to be satisfied. Here, «hunger» was chosen to be the initial «lack of something» to be fulfilled during the quest of the user-hero.

Characters vs. players

Literary studies on character have become even more complex with the interference of Information Technology. There was already an inconsistency between the general concern with exteriority (classic rhetoric) and absolute interiority (romantic tradition) not unravelled by structuralist studies (Barbas 2006). However, some vital assertions were made: the difference between human being and character is absolute; character is an «open concept».

The problem of «consciousness» and «emotions» concerning digital characters has already been sketched (Barbas 2006), being these evaluated the same way they were regarding theatre or cinema actors. Also, the problem of characters verisimilitude implies the use of social rules and cultural norms specific to each time and space they have to inhabit (Si 2006).

The studies about agents and avatars in IF have not yet properly considered these problems, mainly because they bring into play ready-made characters as an example, or create them for each specific purpose. Interactive stories, M.U.D.´s, and role-play games (*Façade*, *Sims*) use general software to develop narrative situations as a whole, or provide a catalogue of ready-made images to choose from (*Second Life*). Also, the relationship between character and plot is not symbiotic as has been proposed (Barbas and Correia 2006). In fact, plot needs agents for its action, but agents are interchangeable inside a plot.

For the *InStory* narrative there were created several virtual characters, also inspired by the figures represented in the décor. They are very simple, but can become more complex if coupled with AI (Young 2000) decision models (Dell'Acqua et al. 2006) and preference revision (Pereira et al. 2009).

They can function autonomously as narrators, or as avatars of the user. The heroes are a Hunter (*Jorge*) and an Amazon (*Diana*). The White Lady (*Dama Branca*), who is an Eco-Vegan animal protecting figure, and the dog, the Greyhound (*Galgo*), play a double role of adjuvants and/or opponents to the hunter(s). The Wild Boar (*Javali*) is the victim, representing the other entire kill (stag, lion, and birds).

In *InStory* the heroes (*Jorge/Diana*) are the main player-characters (PC); the user can choose her avatar's gender in the beginning of the game. Their points-of-view are, respectively, limited to their functions and actions.

Narrator vs. meta– author

In traditional narrative the narrator is any of the entities responsible for telling the story, and the author is the human having created it. For instance (Todorov 1983) the author has multiple duties and functions, being directly responsible for characters, and the way the reader receives the information he wants to give him. In IF the author is more a «facilitator» (Lambert 2002), an agent with more knowledge than the other characters, sometimes defined as «drama manager», replicating some of the tasks of the theatre/film directors.

InStory is an authoring environment filling the existing gap between the creator and the system. The authoring process (Correia et al.2005a) is simplified through a dragging and dropping interface that includes the story/game components. This prevents the need for the user to have previous programming/advanced computer skills. But it has also pre-defined story content.

In IF the author may manipulate or encourage the user into making particular choices in order to advance the plot; but the user is not the author as the number of options is naturally limited. In *InStory* the «literary author» is a member of a crew; he has a role similar to a scriptwriter for film; he shares the authorship with the programmer and all other technicians that cooperate in the making of the story, but also with the user.

In open and pluri-dimensional IF systems the user is physically and mentally active within the realm of the work, she has a practical role in triggering it. This integrative process leads to question narrative paradigms. It attests the unsuitability of traditional terminology to define new practices, and demands the reformulation of literary concepts and relationships.

Within the *InStory* system the author and narrator functions are fragmented and/or shared. The PCs can be interposed by the White Lady, who may suggest alternative behaviours; they share the role of the reader/audience, as is their task to «interpret» the tale they are making; and consequently, they also partake in authorship, as they partially control the main plot. Besides, the system allows users to contribute with new data – text or images – that can be contextually integrated into the story threads. Also, there is an «unusual narrative voice» in the character of the dog that has the ability to lie to the heroes.

The plot

The heroes – *Jorge/Diana* – are hungry. They have to go hunting in order to get something to eat. They need to find a weapon and some ammunition in the surroundings, and decide which animal they want to chase (wild boar, stag, or birds). The hunting starts with a Quiz. If the user answers correctly the first set of questions, she will get three bullets.

She can also look for floral elements (acorns, i.e.) to swap for apples. She can ask the Greyhound for help, but the dog might lie.

The Dog is friends with the hunter(s), and with the wild boar. It will have to decide which one to help. If the hunter kills, the dog will have some boar meat. If the wild boar escapes, it can have some apples as reward, and exchange them for bones.

The White Lady will try to stop the hunting, either offering fruit (apples) in exchange for bullets, or helping the boar to hide/escape. In the event of her losing, she will have to eat a wild boar pie in the end.

The Boar knows it is going to be chased, and has to escape and hide.

In the end there is a Virtual Banquet of apple pies, or boar stew, where points and or ammunition are exchanged for food.

For the moment, the choice of actions belongs to the user, but this generic plot can also be transformed by future use of AI genetic algorithms, or explored if converted to a virtual game. This would decrease the decision power of the user, reducing her authoring capacities, but this loss would be compensated with the element of surprise when in the terrain – suspense – which is one of the properties of linear/traditional storytelling that the audience misses the most.

Structure

Having in mind also the structuralist and post-structuralist narrative studies (Barthes 1996; Greimas 1996), the idea of a basic structural narrative sequence that could be reproduced in each different context was adopted. The aesthetical proposals for virtual space (Holtzman 1997) inspired the elaboration of a fractal model that, being transformed by each environment, could be multiplied in secondary levels.

Accordingly (Greimas 1996), each of the narrative sequences is composed by three «functions»:

F.1 – beginning of an action – the hunt starts;

F.2 – execution/non execution of the action (bifurcation) – where the user can ask for help from another character, or improve her chances of winning by answering a Quiz.;

F.3 – end (success/failure) of the action – advancement to another sequence, or level of the game.

This basic sequence is replicated, yet keeps changing because of the surroundings. The main difference towards traditional narrative modalities is that each sequence has to complete itself – open and end – at the same place. This means that the climax of each event, the raising and falling actions, have to occur almost immediately. As a consequence, it becomes impossible to use the technical storytelling strategy for creating suspense that results from delaying the bifurcation (F.2). It also means that all the sequences have to be independent, sufficiently interesting

and, at the same time, conform to the general consistency of the story. They have to respect the narrative logic independently of its chronology – the moment in which they will be called to existence by the user.
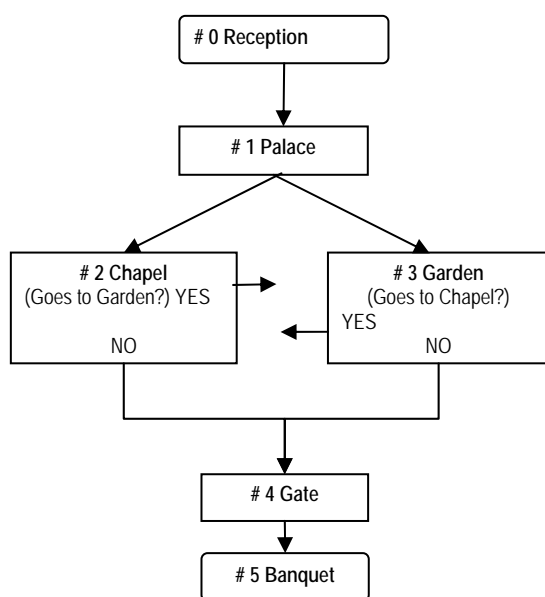

Figure 2. Model of the basic sequence organization

The places of the first (#0 Reception, #1 Palace) and the last sequences (#4 Gate, #5 Banquet) are necessarily pre-established for logistical purposes. However, the order of the intermediate sequences is random.

It is at this point – Sequences #2, #3, #n… – that the user's agency can be put into effect. In practical terms there is no way to escape the linearity of narrative, as each event has to occur in time, one after the other.

Also, in *InStory* (Ryan 2001) there can be found «purely selective interactivity» as the user can determine part of the plot, can swift perspectives by changing of avatar, and explore (with time) all the alternatives in the terrain gaining a global view of Regaleira gardens and palace (as a borgesian «garden of forking paths»); she can also retrieve documents/information from the server, play games and solve problems. There is some «productive interactivity», as the user participates in the «writing» of the narrative by choosing its path. Also, as the intermediate sequences are non-mandatory, the length of the story and the number of episodes experienced depend exclusively on the user's interest and resolve.

Anachronies – Recall and Foretelling

Basic to the distinction between «story» and «discourse» is the concept of «anachrony», where the rupture of the temporal order is used as a stylistic tool. Playing with time is one of the most important literary strategies, regarding the depiction of characters, psychology, the creating of an atmosphere, etc.

Structuralists (Genette 1996) have established three kinds of distinctions regarding the use of time: «order», «duration», and «frequency» of the events depicted. «Order» includes retrospection and anticipation – the narrative possibilities for recall / analepsis and foretelling / prolepsis. The other two modalities are naturally dependent of and subordinate to the former.

In traditional storytelling the interruptions of the natural chronological flow of the events happen often. These ruptures have a strategic function: either they delay the resolution of the bifurcation, or inscribe past and future tenses in the present of the story: recalling events that have already occurred, preparing actions to come, or delivering a revelation.

Considering that both these distinctions are made relatively to a moment that is considered a «now» (Shärfe and Øhrstrøm 2003), the present of each instant in which a story is being read or experimented: «The act of comprehending meaningful communication is possible due to our ability to perceive a "now" in relation to a past (retrospection) and in relation to a future (anticipation). Thus we comprehend a communicative structure by understanding new information as contingent upon previously perceived information, and by anticipating this or that future outcome of the communication. This is true of scientific as well as of narrative discourse, even though the means and pragmatic rationale may differ in terms of precision and granularity of intention. It is simply hard to describe the act of reading / seeing / listening / playing without the notion of a «now» from which past occurrences and future developments are understood».

It is relatively to this «now» that the elements occurring before and after are measured. The inscription of those moments is done through the use of verbal tenses (past/future) consistent with what the above authors call an A-logic (tense logic) in opposition to a B-logic (earlier /later): «In other words: retrospection and anticipation works by means of A-logical notions as long as the communication is proceeding. But it is equally obvious that when we are dealing with retrospective text comprehension, the perspective of the receiver may change from an inside view to an outside view, as we probe event's structures to grasp the signification and ramification of particular events. From this outside perspective, B-logical notions of "before" and "after" can be used just as natural as A-notions are used in describing comprehension based on empathy». This inside/outside perspective has been advocated (Ryan 2001) regarding the act of reading a text. Here, even if the user has beforehand knowledge of the Regaleira geographical map, she will not be able to perform these functions, as she is acting the story, with a first person character point of view. Also, in literary terms, the agency of those ruptures is usually attributed to a narrator, or a character with omniscient perspective.

Prolepsis (future-operator) has a foreshadowing effect, giving the author the possibility to taint plain occurrences with hidden and ominous narrative dimensions. An American Criticist (Frye 1957) avers that the use of such omens and foretelling are plot devices, independent of the actual belief in prophecies both for writer and audience.

Analepsis (past-operator) has a very practical function in what regards the structure of any story, as an instrument to delay the resolution of the bifurcation – the catalysis, in barthesian terminology (Barthes 1996). As implicit in the flashback it takes the story back in time, either to freshly narrate an event occurring before the actual «now», or to reiterate something already told that will acquire new meanings in the present situation. It is the «memory» internal to the narrative.

In a narrative like *InStory* there is no «memory». To exist, memory had to be registered as a past event to be recaptured in a certain «present». Here all moments are the «now», very close to a live reportage, much like a dramatic happening. Analepsis and prolepsis as a tool to promote the immersion of the reader– user do not exist, even if we consider, as before suggested, the all geographical space as a narrative map, a kind of gigantic prolepsis at the beginning of the story.

As it was said, there is not a pre-determined track to be taken by the user; and it is the user's route that creates the plot – the «discourse» – of the hunting story.

The order in which the user goes from one place to the other can be arbitrary, or not – for she may have a preconceived idea about the places she wants to visit. In any case, the narrative present will belong to the place where she is at the moment, each sequence will be the «now» that transforms every other node in «past»/«earlier» (if already visited) or in «future»/«later» (if to be visited).

Also, the user may receive a message informing that she has already visited a certain spot. If she insists in returning there, it becomes a different chapter in the narrative, as it receives the feedback of all the other episodes experienced until then. As each sequence of the story starts and ends at each spot, the other sequences – already visited, or to be visited – will embed themselves in the narrative plot as a different occurrence, enriched by the route already taken, enriched by the experiences already lived, gaining a surplus of connotation in the general bead necklace that this narrative «discourse» became.

Memory – of the past, or of the future – works in traditional narratives because it corresponds to the existence of events that are naturally implied in and by the story – by logic or verisimilitude; when the chronological order of the events exists, when it is possible to know the end of the story – where and when it is going to finish.

Prolepsis and analepsis do not function anymore relatively to the totality of the possible narrative to be told by Regaleira map, but only, and at a later stage, to the episodes associated with the spots that the user choose to visit. Yet, foretelling and recall can be recovered when the user, through the recording of her visit that will be made in the server, can recollect her experiences, and reorganize her own visit as a documentary. In a future phase the user will have the capacity to send texts or images, or even engage in dialogue/play with other users in the terrain. She will participate actively by creating new elements for the story enriching it with her own experiences rather than only deciding between given routes.

CONCLUSION

The implementation of the *InStory* project platform demanded a simple story to help guide the user who visited Quinta da Regaleira for the first time. It started as a very straightforward hunting narrative. Nevertheless, from it emerged quite an amount of speculative issues concerning the development of interactive narratives, in particular due to the physical constraints and technical limitations: the amount of information, the small size of a mobile screen, the fact that the users would be walking through an irregular geographical space.

These constraints became the foundations of its originality. The user is immersed in the story – as a character / narrator /avatar – inhabiting the «diegesis». The real time and space become a stage where the narrative takes place and another theoretical problem emerges: the literary ruse that narratology has called analepsis / flashback and prolepsis / flash-forward as we know them, fundamental for suspense, cannot be supported by a narrative of this kind.

The narrative structure imposed by the environment increased the potential for a fractal multiplication, as well as a new possible approach. Future work could include AI processes and programming, namely the use of genetic algorithms, rule preferences and revision to deepen the story; to find a solution for the lack of suspense problem; and also to introduce ethical rules in IF.

The fact that the user is physically and mentally active within the realm of the narrative, attests the unsuitability of traditional terminology to define new practices, and demands the reformulation of literary concepts or its adaptation to the new media, a new literary taxonomy.

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