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Leiden
The Netherlands

A relational approach to understanding interactions in interactive art

Xu, D.

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Chapter 6

Modelling Applications beyond Interactive Art

6.1 Introduction

In Chapter 2 and 3, we introduce the relational model and its accompanying web-based tool, the Relational Modelling Tool (RMT), designed to describe and visualise interactions in interactive art¹. In Chapter 4 and 5, we show that RMT is capable of modelling and analysing diverse forms of co-located interaction and more-than-human interaction involving both human and nonhuman participants, respectively. These analyses not only yielded valuable insights into diverse forms of interaction but also underscored the capacity of RMT to systematically dissect and visualise complex relational dynamics in interactive art. Building on these findings, we propose that the concepts and descriptors of RMT—alongside its underpinning relational model—can be adapted to describe participatory processes beyond the realm of interactive art.

As we emphasised in Chapter 1, the core of interactive artworks lies in the dynamic exchange—or dialogue—between the audience and the artwork, distinguishing it from other types of participatory art. In this chapter, we examine two participatory artworks that incorporate audience input without fostering an interactive dialogue. These works exemplify distinct forms of audience engagement, neither of which is strictly classified as interactive. Using RMT, we describe the participatory processes within these works and analyse the relationships among the key participating elements. The first example, *Vibe Check* (2020) by Lauren Lee McCarthy and Kyle McDonald, is also discussed in our previous publication (Xu,

¹The latest version of RMT is accessible via: <https://modeltool.liacs.nl/>

Lamers, & van der Heide, 2025). Drawing on the resulting descriptions, we reflect on the broader modelling capabilities of RMT beyond interactive art, while also identifying its limitations and potential areas for improvement. Through this exploration, we not only highlight the analytical potential of RMT across a wider range of artistic and performative contexts, but also consider how insights from these practices can inspire and inform the development of interactive art.

6.2 Modelling Participatory Processes

Here, we select two participatory artworks that exemplify two distinct forms of audience participation: *post-participation* and *hybrid-participation*. In the following subsections, we define these forms of participation, introduce the selected artworks, and present descriptions of their participatory processes using RMT.

6.2.1 Post Participation: *Vibe Check* (2020) by Lauren Lee McCarthy and Kyle McDonald

Vibe Check is an installation that employs surveillance technologies to capture and display live images of gallery visitors along with their “vibes” detected by the artwork (Lee McCarthy & McDonald, 2020). *Vibe Check* does not qualify as a conventional interactive artwork, as the artwork does not intend to establish a direct dynamic exchange with the visitors. Instead, it exemplifies a direct post-participative artwork as defined by Guljajeva (Guljajeva, 2018). This term describes artworks that actively capture and select inputs from the audience or other sources for artistic outputs, often without their consent. By applying RMT to describe the post participation in *Vibe Check*, we aim to evaluate whether RMT can effectively account for the behaviours of a proactive and autonomous art system.

The detailed description of *Vibe Check* can be accessed in this worksheet² and the visualisation is shown in Figure 6.1. Here, we describe two element profiles: one or more human visitors and an art system. The experience begins when one or more human visitors enter the gallery space. Although their participation in the artwork may be unintentional, their presence provides input to the art system, triggering its subsequent actions. This initial interaction is modelled as private communication between the visitors and the art system. According to the installation setup, up to six such interactions can occur simultaneously.

In response to the visitors, the art system selects one of them for emotional analysis. As this is a crucial step for the art system to gather information and provide inputs for its subsequent

²<https://modeltool.liacs.nl/?artwork=vibecheck>

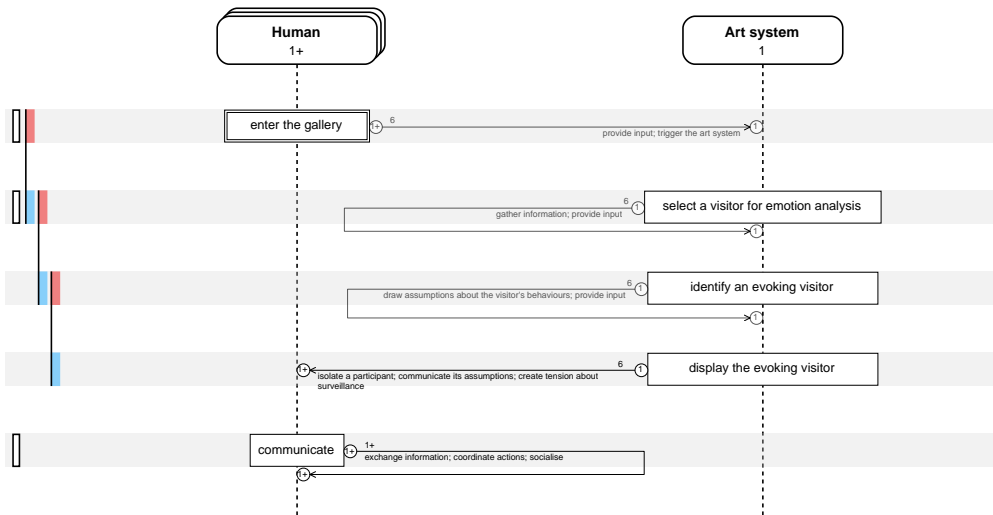


Figure 6.1: Visualisation of described post-participation in *Vibe Check* using RMT.

actions, we modelled it as a private direct communication to the art system itself with six instances. Following the emotional analysis, the art system identifies another nearby visitor who it assumes is responsible for evoking the identified emotions in the previously analysed visitor. This assumption represents a speculative interpretation of the interpersonal dynamics between visitors. Similarly, the art system processes this interaction internally, modelled again as private, direct communication with itself, and supports up to six simultaneous instances of this process.

The art system then publicly displays the image of the identified evoking visitor on a large screen installed on a gallery wall, alongside the emotions it attributed to them. This final step communicates the assumptions embedded in the art system and isolates the evoking visitor from the group, creating tension and drawing attention to the artwork's surveillance mechanisms. This communication is public and can occur in six simultaneous instances, depending on the number of visitors engaged.

Throughout the experience, visitors may also communicate directly and publicly with one another to exchange information, coordinate their actions, or socialise. These interactions occur spontaneously and are public, with multiple simultaneous exchanges possible. This layer of visitor interaction adds a social dimension to the experience, potentially amplifying the tensions and questions raised by the artwork's autonomous processes.

6.2.2 Hybrid Participation: *I Wish You Knew That You Are Me* (2023) by Dan Xu, Jonathan Thaw and Lauren Wedderburn

I Wish You Knew That You Are Me is a participatory performance that involves audience members both online and present at the performance location in collaboratively writing and performing a poem (Xu, Thaw, & Wedderburn, 2023)³. During the performance, online participants contribute thoughts, ideas, and feelings via text, while live participants act as their “voices”, reading aloud these inputs. We consider that this performance exemplifies a form of hybrid participation, in which distinct audience groups engage with the performance based on the characteristics of their presence. By applying RMT to describe the hybrid participation in *I Wish You Knew That You Are Me*, we aim to evaluate whether RMT can effectively account for the different roles of audience members, the performer, and the technical system within a multilayered performative setting.

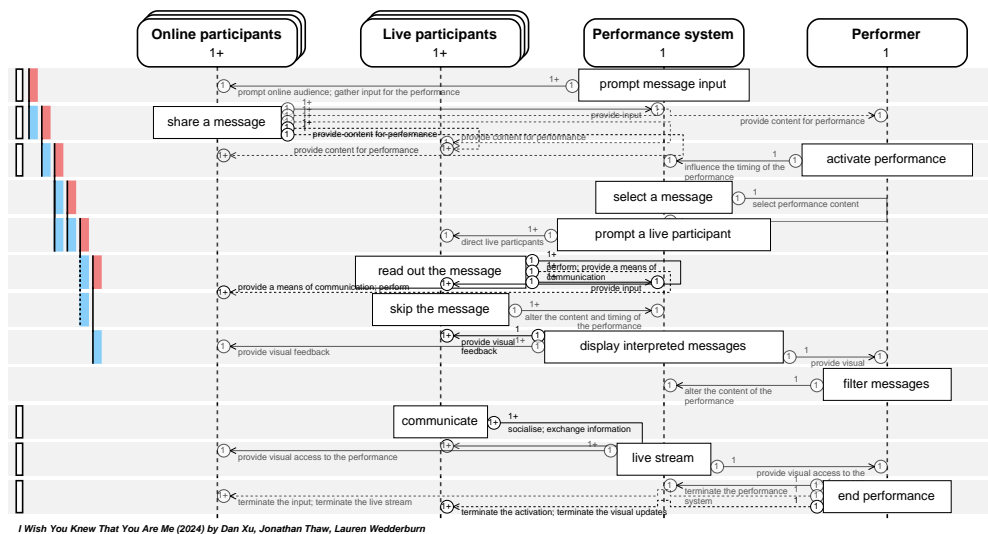


Figure 6.2: Visualisation of described hybrid participation in *I Wish You Knew That You Are Me* using RMT.

The detailed description of *I Wish You Knew That You Are Me* can be accessed in this worksheet⁴ and the visualisation of the description is shown in Figure 6.2. Here, we describe four element profiles: online participants, live participants, the performance system, and the

³*I Wish You Knew That You Are Me* was developed by the thesis main author in collaboration with Jonathan Thaw and Lauren Wedderburn during the Experiments in Networked Performance course at the School for Poetic Computation in June 2023. More details about the performance is documented here: <https://danxxxu.github.io/iwish.html>

⁴<https://danxxxu.github.io/relational-model/?artwork=iwish>

performer. Both participant groups can join the performance via a designated webpage on their personal devices, such as computers or smartphones. Online participants are prompted by the performance system in a direct private communication to submit an intimate message beginning with “I” followed by a randomly selected verb, such as “I wish”, “I love”, or “I was”. These messages, delivered via a direct private communication, serve as the primary content for the performance, allowing the online audience to contribute individual thoughts and feelings to the collective poem.

The performance system is the central technological hub, facilitating communication and managing the flow of interaction. It receives messages from online participants, processes commands from the performer, and transmits prompts and instructions to live participants. Additionally, the performance system employs randomisation to select messages and prompts and allocate a live participant, introducing an element of unpredictability to the performance. The system also integrates a speech-to-text component that transcribes spoken messages from live participants and displays them collectively on a public screen. This transcription creates a direct public communication visible to all participants, further enhancing the shared experience. Throughout the performance, it also streams the recording of the live performance to all other remote elements to provide them visual access to the performance.

The performer, situated remotely, moderates the flow of the performance and manages its timing. They access submitted messages via the performance system and can filter the inputs to ensure appropriateness and relevance. The performer communicates directly and privately with the performance system to influence the content and timing of the performance by deciding the moment to activate a live participant. Through their role, the performer maintains an overarching control of the performance dynamics, but not necessarily the performance content and how it is delivered.

Live participants, present at the performance location, act as the actual “performers” of the poem. Upon receiving messages and prompts from the performance system, live participants have two choices: they can skip the message, notifying the system of their decision in a direct private communication, or they can enact the message by reading it aloud while following the provided prompt. In the latter case, this action results in a direct public communication to the rest of the live audience. Simultaneously, it creates a mediated private communication to the online participants and the performer via the live stream facilitated by the performance system. Throughout the performance, live participants can also communicate with each other directly and publicly to exchange information, coordinate actions and socialise.

6.3 Reflection on the Modelling Capability of RMT

As demonstrated in the previous section, the modelling capabilities of RMT extend beyond interactive artworks. By applying RMT to describe *Vibe Check* and *I Wish You Knew That You Are Me*, we have shown that the same concepts and descriptors can effectively capture the influences and relationships between elements across different participatory processes, which underscores RMT's versatility and potential for broader applications.

In *Vibe Check*, RMT captures not only interactions between elements but also significant internal dynamics within a single element. Although the concepts of action and communication, along with their corresponding descriptors, were originally designed to describe exchanges between distinct elements, our modelling revealed that these same concepts can also specify significant internal processes, such as emotional analysis and behavioural assumptions. This adaptability highlights the utility of RMT in scenarios where internal mechanisms are crucial to understanding the art system's behaviour and the interactive dynamics, such as interactive installations driven by autonomous or algorithmic processes. Extending RMT's application to these internal dynamics opens avenues for its use in modelling and creating new forms of interaction that incorporate the nuanced internal dynamics of art systems where they process, analyse, and respond to inputs in surprising ways.

While effective, this approach also challenges RMT and the relational model's original conceptual foundation, which focuses solely on the external actions of elements within interactions. Moreover, it raises important questions about whose and which internal actions should be considered significant in the modelling process. To integrate the modelling of internal dynamics as a core feature of RMT, more concrete guidelines and refinements are necessary to ensure consistency and clarity in its application.

Meanwhile, the description of *I Wish You Knew That You Are Me* illustrates RMT's strength in analysing complex relational structures involving multiple elements with distinct roles and behaviours. RMT successfully mapped the relationships and communication flows between online participants, live participants, the performer, and the performance system. This analysis allows for a detailed understanding of how individual behaviours contribute to the overall performance and the different roles each element plays, showcasing RMT's potential as a tool for examining multilayered and dynamic processes. By providing a structured and consistent vocabulary for these processes, RMT enables a deeper understanding of the relational dynamics at play in such collaborative and participatory settings.

However, we also observed certain limitations of RMT in describing the complex exchanges within *I Wish You Knew That You Are Me*. While RMT provides fixed and consistent input fields for various descriptors, this structure inherently restricts the types of descriptions

that can be generated. For example, a mediated communication in RMT is defined as two elements communicating via a third element. However, in *I Wish You Knew That You Are Me*, an online participant communicates their messages to other online participants through the livestreamed performance of live participants, which is mediated by both the live participants and the performance system. The current structure of RMT does not fully capture this layered dynamic. If needed, future developments of RMT should allow for more flexible structures to accommodate more complex forms of dynamics.

6.4 Discussion

In this chapter, we have demonstrated how RMT can extend its modelling capabilities beyond the initial focus on interactive artworks to encompass a broader range of participatory processes. Through case studies such as *Vibe Check* and *I Wish You Knew That You Are Me*, we not only showcase its flexibility but also address some of its current limitations revealed by these participatory artworks. The consistent use of terms such as action, communication, and element underscores the potential of RMT to serve as a unified tool for facilitating comparative analysis between different systems and artworks. In doing so, we show its potential to evolve into a more comprehensive framework for analysing and creating participatory and performative processes across diverse domains.

Moreover, as previously noted, the dynamics observed in the participatory artworks described above can also inspire and inform the creation of interactive artworks. For instance, the specification of key internal processes within elements, as demonstrated in *Vibe Check*, and the multilayered involvement of different elements in *I Wish You Knew That You Are Me*, can also be incorporated in interactive artworks. Through this study, we also hope to highlight the value of developing a shared analytical language, fostering cross-pollination among different practices.

Discussion
