

Dramatizing Software Patterns

Focus Group Report

Valentino Vranić

Aleksandra Vranić

Branislava Vranić

vranic@stuba.sk

aleksandra.vranic@stuba.sk

branislava.vranic@gmail.com

Institute of Informatics, Information Systems and Software Engineering
Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava
Slovakia

ABSTRACT

The focus group on drama patterns we organized at EuroPLOP 2023 attracted 16 participants (apart from the organizers), who together built a short drama play (created by Aleksandra Vranić) based on the motifs from the stories of Alice in Wonderland. We discussed how particular drama patterns metaphorically correspond to some software patterns and elaborated on two examples of such correspondence: the *Thoughts Reflecting Environment* drama pattern and its correspondence to the *Observer* design pattern and the *Loosely Coupled Situations* drama pattern and its correspondence to the *Visitor* design pattern. Both drama patterns were first played by the participants and then related to the corresponding design pattern. We also played *Observer* in a technical, nonmetaphoric way. We also made a performance at the banquet, which was accepted with delight. We achieved this with no rehearsals and with the actor for the main role appointed just before the performance, which confirmed once more how powerful patterns are.

CCS CONCEPTS

• **Software and its engineering** → **Patterns**.

KEYWORDS

drama patterns, design patterns, organizational patterns, pattern composition

ACM Reference Format:

Valentino Vranić, Aleksandra Vranić, and Branislava Vranić. 2023. Dramatizing Software Patterns: Focus Group Report. In *28th European Conference on Pattern Languages of Programs (EuroPLOP 2023), July 5–9, 2023, Irsee, Germany*. ACM, New York, NY, USA, 4 pages. <https://doi.org/10.1145/3628034.3628075>

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than the author(s) must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.

EuroPLOP 2023, July 5–9, 2023, Irsee, Germany

© 2023 Copyright held by the owner/author(s). Publication rights licensed to ACM.

ACM ISBN 979-8-4007-0040-8/23/07...\$15.00

<https://doi.org/10.1145/3628034.3628075>

1 INTRODUCTION

Many formats have been proposed for the description of software patterns in an effort to make them more understandable. Studying the specific pattern examples often helps in understanding them more than just reading their general description. But how would it be to become a part of *Observer*, *Mediator*, or *Visitor*? Or some organizational pattern of software development, like *Architect also Implements*?

In this focus group, we tried to revive software patterns as drama scenes. For that purpose, we used drama patterns, which enable setting lively plays in no time and in a highly creative, collaborative, and inclusive fashion [5]. Drama patterns also make possible to see patterns from within and to understand why the conflict of contradicting forces is the essence of a pattern and how patterns generate so diverse solutions depending on the context [4].

We discovered the concept of a drama pattern and published several papers on this topic [3–6]. We organized a successful focus group at EuroPLOP 2019 entitled *Drama Patterns: Seeing the Patterns from Within* that ended in a banquet performance [4]. We also organized a workshop entitled *Understanding Humane in Patterns Through Drama* as a PLoP 2022 PLoPourri event (remotely).¹ We have experience in applying drama patterns with hundreds of children of all ages and dozens of students within a regular university course.²

The rest of this report presents the objectives of the focus group (Section 2), performance within the focus group and after it (Section 3), and reflections on what has been achieved (Section 4).

2 OBJECTIVES

The objectives of this focus group were to:

- Build a short play with drama patterns
- Observe how some drama patterns correspond to certain software patterns
- Dramatize some other software patterns (the choice depending on the participants)

An additional objective was to perform the play at the conference banquet, which was scheduled practically immediately after our focus group.

¹<http://fiit.sk/~vranic/pub/plop22/>

²<https://is.stuba.sk/katalog/syllabus.pl?predmet=393400>

We chose the play we used in our earlier work [6]. The play (created by Aleksandra Vranić) is based on the motifs from the stories of *Alice in Wonderland*, namely on the second Lewis Carroll’s novel on Alice, entitled *Through the Looking-Glass, and What Alice Found There*, in which, as the its title says, Alice gets to Wonderland through a mirror. There, she finds herself in a large room with many doors. She tries them one by one hoping that one of them will bring her back home. But each door gets her just into another bizarre situation. In the end, she is being woke up by other children on a playground. Excited, she explains them where she was and starts recognizing them as the characters she met. They all claim it was just a dream and call Alice to go play with them. She doesn’t believe them, yet they all go play together.

Figure 1, adapted from our earlier work [6], shows the structural correspondence of the drama patterns used to build this play. Solid edges point to the patterns that elaborate the patterns they originate from, and the dashed edge indicates what pattern is the *Echoes* fundamental property, echoing.³ The patterns are numbered in the order of their application. The patterns are annotated by the names of the scenes they constitute.

3 PERFORMANCE

Apart from the organizers, the focus group attracted 16 participants: Sae Adachi, Haruto Aoki, Martin Eisemann, Andreas Fießer, William Flageol, Daud Haiderzai, Takashi Iba, Erika Inoue, Diego Moreira da Rosa, Ema Okubo, Christopher Preschern, Michiel Provoost, Sawami Shibata, Marc Schmidt, Dennis Christian Wilk, and Olaf Zimmermann. We had a very diverse group of participants as we had no admission requirements. No acting experience was required. No knowledge of software patterns was assumed.

Despite we had only 75 minutes for the whole focus group, we managed to play all the scenes in the play. Alice was not always played by a female participant, and whenever a male participant took this role, we called him Alistair.

We started with the Mirrors scene, in which Alice goes around a number of mirrors, represented by other participants, and follows how they reflect her moves. Then there was the Dancing Robots scene, in which Alice meets robots who make her behave like them wanting to keep her with them for good. Next was the Fashion Designer scene, in which Alice meets a fashion designer who tries to sell her some of the goods he designed (see Figure 2). After that, we played the Deaf Witches scene, in which Alice meets deaf witches who misunderstand what she’s saying and who she is (see Figure 3). This was followed by the Birds scene, where Alice walks through the woods and bird and other woods voices start to be articulated expressing her feelings in words. It all ended up with the Interleaving Reality with Wonderland scene, in which Alice is being awoken by other children on the playground as if all that happened was just a dream (see Figure 4). By this, we extensively exercised pattern composition, although we did not emphasize this to the participants.

Apart from the Fashion Designer and Deaf Witches scene, which were played twice, all other scenes were played only once.

After this, we discussed with the participants how some drama patterns seem to correspond directly to certain software patterns. One that we mentioned was *Observer* [2]. We provided a brief explanation of this pattern for those participants who were not familiar with it, and possibly a refreshing one for those who knew this pattern very well. The problem it addresses was presented as a conflict of contradicting forces:

Observing objects have to be notified of a change in the state of the observed object,
but it has to be possible to add them without a need to modify the observed object.

The solution was explained as a notification mechanism that enables observers to easily reflect the state of the subject.

Several participants readily recognized that *Observer* corresponds to the Birds scene, an instance of the *Thoughts Reflecting Environment* drama pattern [6]:

A protagonist passes through an environment.

Forces:

There is a need to express the protagonist’s thoughts,
but without having the protagonist directly express them.

Resolution: The environment reflects the protagonist’s thoughts by modulating the sounds or visual expressions it already makes.

With respect to the *Observer* pattern, the subject is the protagonist whose thoughts are being observed by other actors who, consequently, take the corresponding actions.

The other pattern we mentioned was *Visitor* [2]. The problem it addresses was presented as a conflict of contradicting forces:

Operations have to be added to the objects of certain classes,
but without having to change them.

The solution was explained as a backdoor mechanism for making additional operations called from within the objects of the given classes without having to change them when another such operation is added.

Some participants recognized that *Visitor* corresponds to Alice visiting different rooms, which represents an instance of the *Loosely Coupled Situations* drama pattern [6]:

A transitioner moves between separate situations.

Forces:

There is a need to connect separate situations,
But without affecting what happens in each of them.

Resolution: Introduce a frame situation from which all separate situations will be accessible. Make the transitioner trigger each separate situation from the frame situation by making a transition represented by some observable action.

The transitioner is a sufficient connection between the separate situations. Other than that, they can be kept independent of each other.

³*Echoes* is one of the fifteen fundamental properties of things that do have life as identified by Alexander [1]

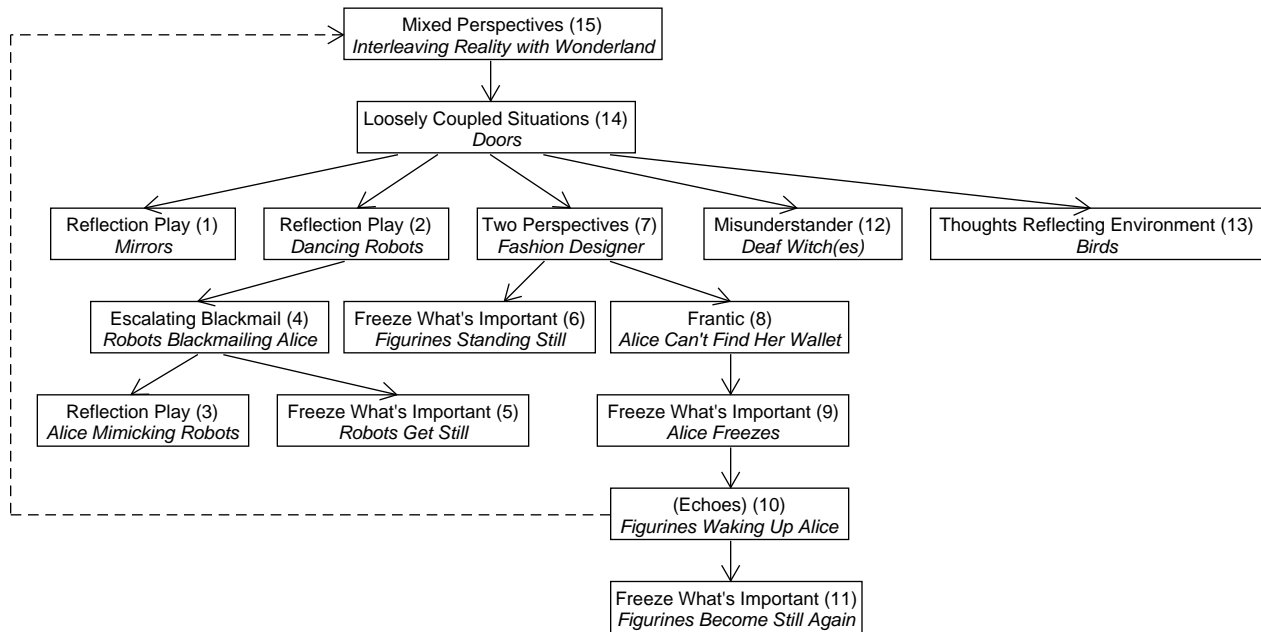


Figure 1: Drama patterns in Alice in Wonderland (the patterns are numbered in the order of their application and annotated by the scenes they constitute; adapted from our earlier work [6]).



Figure 2: Fashion designer.



Figure 4: Alice after waking up.



Figure 3: Deaf witches.

With respect to the *Visitor* pattern, the visitor is the protagonist who virtually visits different situations (usually rooms or other

physical places) and changes them.⁴ Some participants argued this reminded them of *Strategy* rather than *Visitor*. This is not a contradiction, since *Strategy* is practically a half of *Visitor*.

During the discussion, we also played *Observer* in a technical, nonmetaphoric way (see Figure 5). We first demonstrated the situation when there is no notification mechanism between the subject and observers. The observers turned their back to the subject, so they couldn't see whether it was changing or not. The subject had to touch each of the observers one by one and warn them of the change. Then they could have a look at the subject and adjust their state. The state was indicated by the position of hands. Then, the notification mechanism was introduced so that they can see the subject and change their state based on what they observe.

⁴This connection was first established by Natália Šedová, a student at the Slovak University of Technology in Bratislava.



Figure 5: Observer in a technical way.

As it occurred that a sufficient number of participants was willing to perform the play at the banquet, we made some quick consultations. William Flageol accepted the main role, albeit he never tried it during the focus group. There was no time for any rehearsals. We decided to skip only the Deaf Witches scene as we were warned by the conference organizers not to take too much time at the banquet. Apart from organizers, eight participants took part in this final performance (see Figure 6). The audience accepted it with delight. Several colleagues asked us how long we rehearsed this and were very surprised when they heard the answer.



Figure 6: The banquet performance: waking up Alistair.

4 REFLECTIONS

The focus group on drama patterns we organized at EuroPLOP 2023 attracted 16 participants (apart from the organizers), who together built a short drama play (created by Aleksandra Vranić) based on the motifs from the stories of Alice in Wonderland.

We discussed how particular drama patterns metaphorically correspond to some software patterns and elaborated on two examples of such correspondence: the *Thoughts Reflecting Environment* drama pattern and its correspondence to the *Observer* design pattern and the *Loosely Coupled Situations* drama pattern and its correspondence to the *Visitor* design pattern. Both drama patterns were first

played by the participants and then related to the corresponding design pattern. We also played *Observer* in a technical, nonmetaphoric way.

We also made a performance at the banquet, which was accepted with delight. We achieved this with no rehearsals and with the actor for the main role appointed just before the performance, which confirmed once more how powerful patterns are.

This focus groups has also implications for rurAllure,⁵ a Horizon 2020 project one of the organizers participates in (Valentino Vranić), This project addresses the promotion of rural museums and heritage sites in the vicinity of European pilgrimage routes, part of which are also narratives recorded to inspire travelers as they follow their routes. Consequently, narratives could be easily dramatized using drama patterns making them even more attractive for travelers. On the other hand, getting the rurAllure software developers experience drama patterns would help them better understand how they can apply design patterns.

ACKNOWLEDGMENTS

We would like to thank the participants of our focus group for their commitment, acting performance, and inspiring reflections.

The work reported here received funding from the European Union's Horizon 2020 research and innovation program under the grant agreement No. 101004887 (rurAllure), from the Operational Program Integrated Infrastructure for the project: Support of Research Activities of Excellence Laboratories STU in Bratislava, project No. 313021BXZ1, co-funded by the European Regional Development Fund (ERDF), and from the Erasmus+ ICM 2020 program under the grant agreement No. 2020-1-SK01-KA107-078196.

REFERENCES

- [1] Christopher Alexander. 2002. *The Nature of Order: An Essay on the Art of Building and the Nature of the Universe, Book 1 – The Phenomenon of Life*. The Center for Environmental Structure.
- [2] Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides. 1995. *Design Patterns: Elements of Reusable Object-Oriented Software*. Addison-Wesley.
- [3] Patrik Honišek and Valentino Vranić. 2020. Mining Drama Patterns in Dramatic Situations. In *Proceedings of 27th Conference on Pattern Languages of Programs Online, PLOP 2020*. ACM.
- [4] Aleksandra Vranić, Valentino Vranić, and Branislava Vranić. 2019. Drama Patterns: Seeing the Patterns from Within. In *Proceedings of 24th European Conference on Pattern Languages of Programs, EuroPLOP 2019*. ACM, Irsee, Germany.
- [5] Valentino Vranić and Aleksandra Vranić. 2019. Drama Patterns: Extracting and Reusing the Essence of Drama. In *Proceedings of 24th European Conference on Pattern Languages of Programs, EuroPLOP 2019*. ACM, Irsee, Germany.
- [6] Valentino Vranić, Aleksandra Vranić, and Waheedullah Sulaiman Khail. 2020. Growing Organizations with Patterns: Lessons from Drama. In *Proceedings of 25th European Conference on Pattern Languages of Programs, EuroPLOP 2020 Online*. ACM.

⁵<https://rurallure.eu/>