

Author's Note: I am interested in improving this. If you use this case, please let me know by emailing me at jacobpp@gmail.com.

Title: "Expanding the Pie" in the Jordan Basin: Multiple-issue water negotiations

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Summary: The Jordan River Basin continuously suffers from water scarcity, droughts and overuse. In particular, the Jordan Basin has problems with waste, overuse, and a surge of demand brought forth by refugees from neighboring countries. At the Jordan River's terminus, the Dead Sea is shrinking by 1m in elevation each year. In an attempt to solve these chronic scarcity issues, Jordan, Israel, and the Palestinian Authority have signed an agreement that paves the way for the Red Sea-Dead Sea water conveyer project that involves the construction of a desalination plant in Aqaba, Jordan, which will desalinate 800-1,000 million cubic meters (mcm) per year. The desalinated water will be shared between Israel and Jordan, and the brine left over will be pumped into the Dead Sea through a pipeline and a canal. In addition, Jordan will purchase about 50 mcm of water from Israel from the Sea of Galilee to provide water to its northern cities. The Palestinian Authority, though initially part of the negotiation process, will not receive water from the conveyer project. Students review environmental data and practice negotiation skills through a simulated bargaining session based on the Israeli-Jordanian-Palestinian negotiations. Students will also practice different negotiation skills through multiple techniques.

What course(s) might this case be appropriate for?

Environmental science and policy, Environmental negotiation, Water policy, and other environmental science, water resources, and negotiation courses.

What level is this case appropriate for?

This case is designed for upper level undergraduates and graduate students, ideally in smaller courses (fewer than 30 students).

SESYNC Learning Goals for Society-Environment Synthesis Case Studies:

1. Understand the structure and behavior of socio-environmental systems (SES).

Learning objective: Students will identify SES components and how they interact with one another.

Related activity: Students will produce a reflection paper that demonstrates their understanding of a socio-environmental system.

2. Recognize the importance of scale and context in addressing socio-environmental problems.

Learning objective: Students will recognize the importance of space and place and recognize the conflicts between science and policy.

Students will be able to evaluate the interconnections between policy decisions and consequences on the ground.

Related activity: Students will participate in a mock negotiation where they will have to take scale and context into account.

3. Be able to co-develop research questions and conceptual models in inter- or trans-disciplinary teams.

Learning objective: Students will be able to map a SES and recognize the interconnections between system components.

Related activity: Students will create a system concept map at the beginning of the case study, with opportunities to revise it as they gain understanding to the system's complexity.

Introduction

The Dead Sea is one of the more unique places in the world. It is perhaps best known for being the world's lowest land with an elevation of 1,407 feet below sea level, as well as its hyper-buoyant, hypersaline waters (over seven times ocean salinity). The mud from the shores of the Dead Sea is sought after for its exfoliating properties, and the minerals in the soils on its shoreline have been used for mining purposes. In response to this uniqueness, both Israel and Jordan have built resorts on the shores, drawing thousands of visitors each year. Israeli and Jordanian mineral industries also use the Dead Sea for billions of US dollars of annual revenue.

The future of the Dead Sea is at risk. Increased withdrawals upstream from the Jordan River, the Sea of Galilee and their tributaries, have caused the Dead Sea to significantly shrink by 40% of its volume in 1960. In fact, the Dead Sea turned over chemically for the first time in recent history as a result in 1978, destroying the division between the less-saline surface water and its hypersaline fossil base; this brought water to the surface that had not seen the light of day in 300 years (Wolf 1996).

The increased use and demand for water by people upstream has caused different proposals to reverse depletions. Past proposals have included a canal linking the Mediterranean and Dead Seas and larger projects to link the Red and Dead Seas. In 2014, Israel and Jordan agreed to study a plan that would be at a smaller scale than other proposals. The plan includes a desalination plant at the Red Sea in Aqaba, Jordan. Some of the desalinated water would supply the city of Aqaba and other desalinated water would be sold to Israel, where it would be used in irrigated agriculture by farmers in the Negev. The resulting brine would be pumped into the Dead Sea through a pipeline and a canal, generating hydropower as it descends in elevation. Upstream in the Jordan Basin, Israel has agreed to sell surface water rights from the Sea of Galilee to Jordan so Jordan can supply its cities.

This case is interesting for a number of reasons. First, it could represent a contradiction to traditional negotiation wisdom that single-issue negotiation is a more easily accomplished feat. Second, it bridges multiple sectors and demonstrates strong linkages within the water-food-energy-environment nexus in multiple countries. Finally, the management of shared waters continue to be ever more relevant as the population of the Jordan River Basin is growing and water shortages are increasing.

In this case, students will attempt to negotiate a solution between the Israeli, Jordanian, and Palestinian governments. Before the mock negotiation, students will prepare by learning the basics in negotiation, hydrology, and desalination. Students will also practice concept mapping by mapping the food-water-energy-environment nexus.

Background – Teaching Notes

Negotiation lecture (see Expanding the Pie Background Lecture Powerpoint) – Day 1

For an icebreaker, I suggest showing an image that can be interpreted in two ways. I chose to show the photo of the blue dress/white and gold dress controversy (See [https://en.wikipedia.org/wiki/The_dress_\(viral_phenomenon\)](https://en.wikipedia.org/wiki/The_dress_(viral_phenomenon)) for reference). The point that is trying to be demonstrated: people view things from multiple perspectives: each person has their own set of facts; it's impossible to see the whole picture, or to know everything.

Then, I show an angels and devils cartoon, demonstrating that in negotiations, both sides perceive themselves as aligned with the angels. I then pose the following question to students: “Which side do you think you are on?” I then ask about any arguments they've gotten into with a partner or friend – how often are they convinced that they're completely in the right?

I follow this with a brief introduction of the basics of the negotiation process – Zero-sum vs. win-win. Next, I have students execute the Ugli Orange simulation (see UgliOrange document; page 8 for instructions, and print off instructions for students found at the end of the notes. Link: www2.hawaii.edu/~barkai/aals/NEB.doc). I stop the exercise when about half the students reach a solution. I allot 10 minutes to do this, but don't announce how much time students have to complete the exercise in advance. Then, we discuss the students' solutions. I ask: “You would not reach a negotiated solution to such a complex problem in only 15 minutes in the real world, but what could you have done to make more progress?”

After the Ugli Orange simulation, I cover general negotiation principles, different types of bargaining (including distributive and integrative negotiation), and communication. To practice communication, I print Figure 3 from the Ugli Orange document (page 40), and have students practice an active listening exercise. Students take turns – each student gets 3 minutes to be the speaker and 3 minutes to be the listener. The pair will decide – one student will roleplay “passive listening”, and the other student will roleplay “active listening.” The passive listening person will listen first.

Next, we perform a “listening critique”, where we watch a 10 minute video of two mothers, one Israeli and one Palestinian, each of whom have lost children to the Israeli-Palestinian conflict. Instruct students to pay attention to the evolution of the dialogue and to take notes as to what were the sources of their miscommunication. Have a 5 minute discussion after the video.

Finally, we discuss negotiation with Maslow's hierarchy of needs (for more information: <http://www.how-to-negotiate.com/n.htm>, under “Need Theory”.) This is to demonstrate that, when negotiating, to be aware of others' “basic needs.”

Day 1 Assignments:

1. At the end of class: Minute Paper. Ask students to write:
 - a. What is the most important thing that they learned?
 - b. What question remains unanswered?
2. Reading on negotiation tactics (Fisher, Roger and William L. Ury. 1981. *Getting to Yes*. London: Penguin Group, chapters 1-4) Though most copies can be purchased for under \$10, alternative free reading resources can be found at negotiations.com/articles. Some I recommend are

“Negotiation Listening Skills”, “Where Will You Draw The Line in Negotiation?”, “Negotiation Styles”, “What is Win-Win Negotiation?”, “Pre-Negotiation Strategy Check List (Parts 1 and 2)”, “Negotiation Tactics for Win-Lose Distributive Negotiations”, “Multiparty Negotiations”, “Negotiation Types”, and “BATNA - Best Alternative”.

3. Write about a situation where you thought you could have negotiated better. Possible situations include negotiating with your parents, your siblings, your co-workers, your friends, your significant other – even your children. Describe which tactics each of you used.

OR

Write about a situation where you thought you negotiated well. Describe which tactics each of you used and why you did so well.

For either option, use the vocabulary discussed in *Getting to Yes* to describe your situation.

Alternatively, a list of vocabulary terms are available at

<http://www.negotiations.com/definition/>.

Surface hydrology lecture – Day 2

Depending on which class this is being used for (and what’s been covered), this part of the lecture can be more in-depth or skipped altogether. Here is what I suggest to cover (example slides present in the Expanding the Pie background lecture powerpoint):

- The distribution of earth’s water – demonstrating how little water is actually usable, accessible freshwater.
- Have the students list the multitude of things that water can be used for (cooking, washing, agriculture, recreation, etc...)
- Hydrological cycle, soil-water budget, groundwater basics.
- Problems with water use and water resources:
 - Too little water
 - Groundwater overuse – subsidence and sinkholes – saltwater intrusion
 - Drought and unequal distribution of water
 - Depletion of endoheric lakes
 - Rivers running dry
 - Defining different types of drought
 - Too little water
 - Flooding – building on floodplains
 - Urban flooding
 - Poor quality/contamination
- Consumptive vs. non-consumptive use
- Global water problems
 - Climate change
 - Safe and reliable access to drinking water
 - Population growth
 - Sharing water resources among countries
- Water management
 - Dams and dam removal
 - Desalination

Day 2 Assignments:

1. At the end of class: Minute Paper. Ask students to write:
 - a. What is the most important thing that they learned?
 - b. What question remains unanswered?
2. Reading on negotiation tactics (*Getting to Yes*, chapters 5-8, conclusion).
3. Concept map of the water-energy-food-environment nexus. See <https://www.udel.edu/chem/white/teaching/ConceptMap.html> for instructions as to how to introduce the topic. The point is for students to understand the system linkages.

Day 3 - Negotiation Preparation

First, review with students the “Planning for the Negotiation” slides at the end of the background lecture powerpoint. Briefly cover the background of the Red Sea-Dead Sea canal negotiations. Then introduce the negotiation simulation documents.

Before negotiating, each party will have to prepare two-paragraph opening statements, which declare their positions and what they hope to accomplish during the negotiation. They will also have to identify areas where they were willing to compromise. At the end of negotiating, they will have to write a paper to present to another class (or group), who will act as the Israeli, Jordanian, and Palestinian people, and will have to accept or deny the plan.

Provide a list with a small blurb of techniques that can be used in the negotiating process. E.g. 1. Look for options that would make one party better off with little or no cost to the other, taking advantage of differences in valuations, expectations, risk preferences, and time preferences. 2. Note the losses that would result from continued disputing. Note that it does not make sense to justify continued disputing because of “sunk costs” that already have been incurred, as parties are unlikely to recover them in any case. Source: John Lande, [Negotiation: Sample Paper 2](http://educatingtomorrowlawyers.du.edu/resources/sample-paper-2-negotiation), University of Missouri School of Law. <http://educatingtomorrowlawyers.du.edu/resources/sample-paper-2-negotiation>

Instruct students to take notes on the negotiation proceedings after it occurs. Request a daily journal due at the beginning of the next day reflecting on the negotiation (with an emphasis of trying to answer the questions for the final paper). A simple paragraph or two will do. Points can be given purely for participation.

Day 3 Assignment:

1. Read background documents as part of the negotiation (See “Student Handouts”).
2. Two paragraph position brief. Each party will have to prepare two-paragraph opening statements, which declare their positions and what they hope to accomplish during the negotiation. They will also have to identify areas where they were willing to compromise.

Days 4-6: Negotiation. Assignments:

1. Daily journal for each day of negotiation events
2. Negotiation paper (see instructions below).

STEPS IN ASSESSMENT

1. Ensure that theoretical background is understood. Make sure that negotiation principles are understood.
2. At the end of each class, have one Minute Paper: What was the most important thing you learned during this class? And, what important question remains unanswered?
3. Position paper (2-3 paragraphs):
 - a. The participant will analyze their own position as to what resources they have.
 - b. Participants will also define their goals in negotiation.
 - c. Participants will identify what their limits are in negotiating, what there are some opportunities for cooperation, etc.
 - d. Participants will identify which order should the issues be negotiated in, and why?
 - e. Finally, in a brief paragraph: Compare positional (i.e., zero-sum) negotiation vs. interest-based (expanding the pie) negotiation.
4. Students will produce concept maps, mapping the food-water-energy-environment nexus. For instructions as to how to introduce the concept: <https://www.udel.edu/chem/white/teaching/ConceptMap.html>. For assessment: use Appendix A below for assessing the connections (Rubrics of Evaluating Systems Thinking). Source: Hung, W. (2008), Enhancing systems-thinking skills with modelling. British Journal of Educational Technology, 39: 1099–1120. doi: 10.1111/j.1467-8535.2007.00791.x
5. At the end of negotiating, they will have to complete a reflection paper about the negotiation process (see instructions below).

The paper should be 5 to 8 pages double-spaced; 12 point font; standard margins. The first part of the paper should be analyzing the following questions (3 to 5 pages):

- a. List who attended and participated. Did people participate and stay throughout the entire planning and bargaining sessions? If they didn't (or left early), how did that affect your team behavior? What did you do? What was your role?
- b. Did your objectives, positions, and/or strategies change during the negotiating process? If so, how? If not, why not? Were some issues considered non-negotiable?
- c. How did your negotiations work with the other parties? Describe the nature of your relationship with the other parties, and whether/how it changed.
- d. Were there stages in the negotiations? If so, what were they and were each of them productive or unproductive?
- e. How were issues addressed? Singularly or all at once?
- f. Was the bargaining fundamentally distributive, integrative, accommodative, or mixed? Were you comfortable with the strategies your group and the other group adopted? What were the strengths and weaknesses of your bargaining strategies, tactics, positions and those of the other party? Was "mutual gains bargaining" feasible or desirable?

In the next section of your paper (2-3 pages double-spaced), comment on how YOU think Israel, Jordan, and the Palestinians should proceed in water planning and negotiation.

- a. Describe your plan in basic details (1/2 to 1 page).
- b. Describe the pros and cons in your plan. Who would be happy with your plan who was present at the negotiating table? (Answer this in terms of both sectors within the country and countries themselves) Are there “winners” in your plan? “Losers”? Is it possible to create a “win-win” situation here?
- c. What do you think of the negotiated plan created by the Israelis and Jordanians? Are there “winners?” “Losers?” Pros and cons of the plan?
- d. How would this negotiation been different if the negotiation was over plans in a larger basin (e.g., the Nile)? A sub-watershed? Explain.

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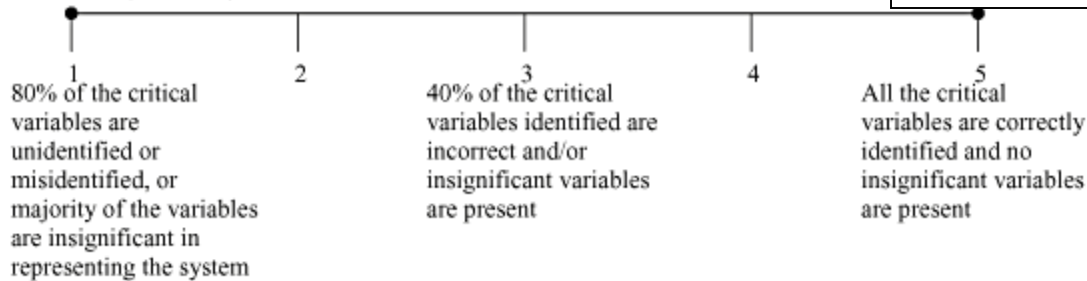
Appendix 1: Case Study timeline.

| | Day 1 – Introduction, Negotiation Strategies | Day 2 – 3a – Hydrology Background | Day 3b – In class negotiation strategy day | Day 4 – Negotiation prep, Part 1 | Day 5 – Negotiation Part 2 | Day 6 – Negotiation Part 3, wrap-up |
|--|---|--|---|---|-------------------------------------|---|
| <i>Learning objective</i> | Students will be able to evaluate the interconnections between policy decisions and on-the-ground consequences. | Students will recognize the importance of space and place; conflicts between science and policy. | Students will be able to map a SES and recognize the interconnections between system components. | Students will recognize the conflicts between science and policy. | | |
| <i>In-class Activities</i> | -Lecture (Negotiation basics, positions) -Ugli Orange Exercise (10 min) -Discussion (15 min) | -Lecture (Surface hydrology, water rights, water conflict and cooperation, water sources) | -Introduction to negotiation assignment -Students devise strategy | -Negotiation activity | -Negotiation activity (cont.) | -Negotiation activity (cont.) 30 min. -Class discussion of solutions reached, challenges |
| Assessments: <i>Writing Assignment</i> | Minute Paper: -Most important thing learned? -What question remains unanswered? | Minute Paper: -Most important thing learned? -What question remains unanswered? -Concept map of water-energy-food-environment nexus | Two paragraph position brief (same as an opening statement) -Declare positions, goals, what they hope to accomplish, areas of potential compromise | Daily journal of negotiation events | Daily journal of negotiation events | Daily journal of negotiation events, negotiation paper |
| <i>Reading Assignment</i> | Getting to Yes Intro, Chapters 1-4 | Getting to Yes Chapters 5-8, Conclusion | Negotiation background documents | | | |
| | | | | | | |

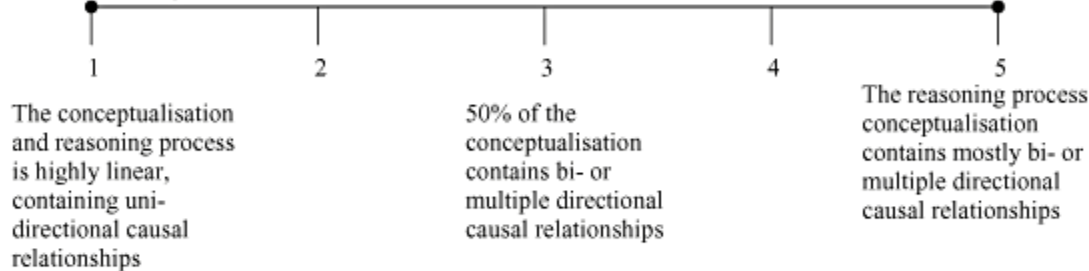
Rubrics of Evaluating Systems Thinking

Appendix 2. The work from which this rubric is taken includes the following notice of copyright: © 2008 W. Hung.

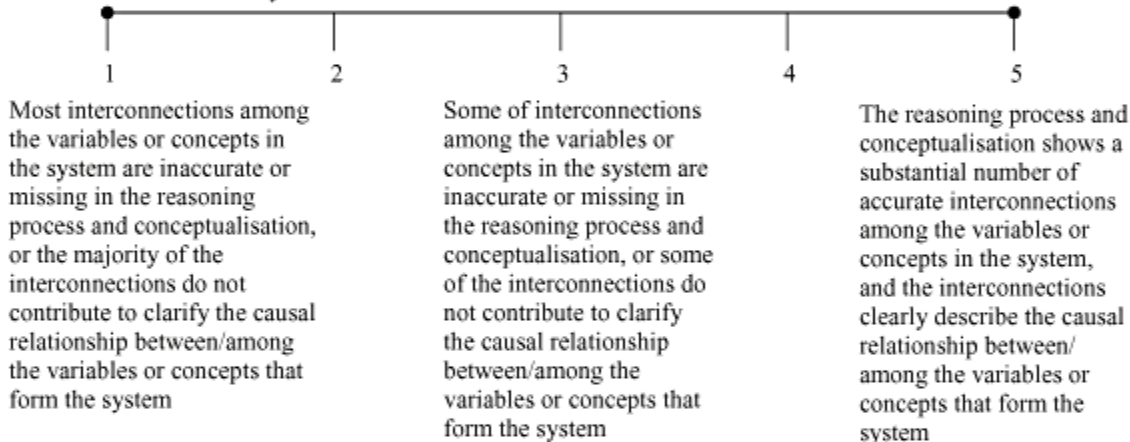
Identification of crucial variables



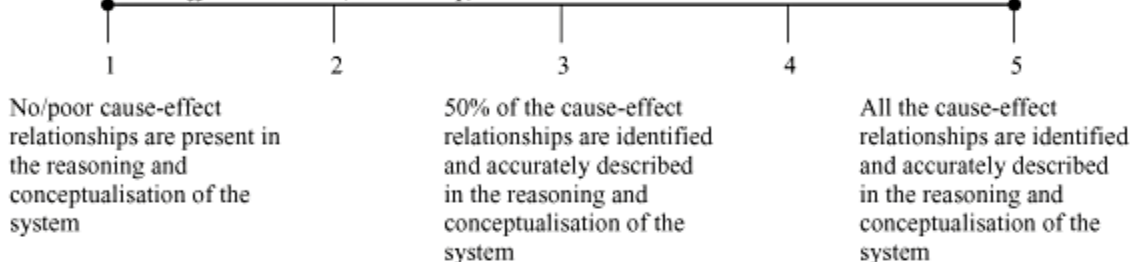
Linearity



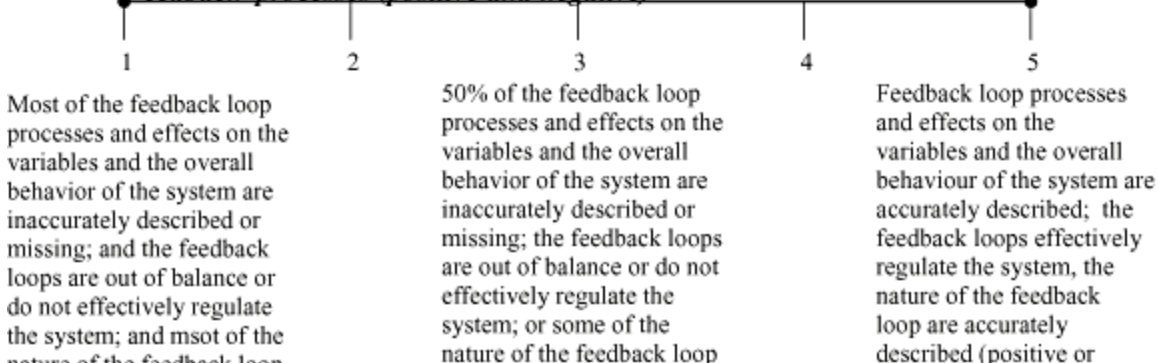
Interconnectivity



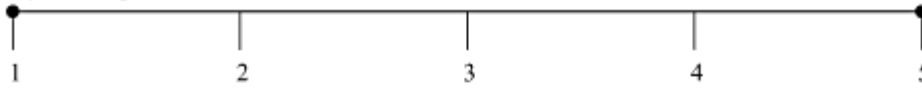
Cause-effect relations (causal-loop)



Feedback processes (positive and negative)



Dynamics processes

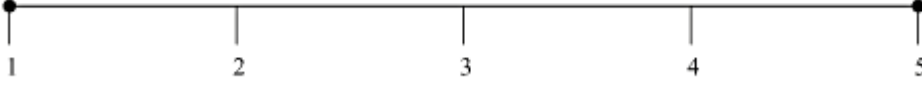


View the whole system as static, and no consideration of dynamic processes occurred in the system; and no consideration of time delay effects

View the whole system as partially static, or no consideration of dynamic processes occurred in the system; or no consideration of time delay

View the whole system as dynamic entity, considering dynamic processes occurred in the system; consider time delay effects

Contextualization

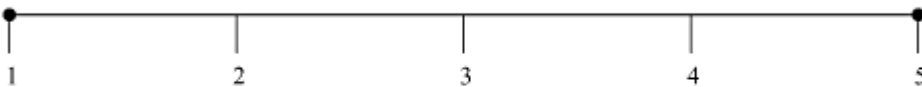


The reasoning process and conceptualisation is decontextualised, taking no context-specific consideration, containing no contextual variables or effects

The reasoning process and conceptualisation is partially contextualised, taking some context-specific considerations, containing an insufficient number of contextual variables or effects

The reasoning process and conceptualisation is highly contextualised, taking full context-specific consideration, containing an appropriate number of contextual variables or effects

Underlying mechanism (explanatory knowledge)



The conceptualisation does not address the nature of the parts of the system and the inter-causal relationships of the parts in a way that explains how these relations serves as the underlying mechanism of the system that presents an explanatory knowledge

The conceptualisation partially addresses the nature of the parts of the system and the inter-causal relationships of the parts in a way that explains how these relations serves as the underlying mechanism of the system that presents an explanatory knowledge

The conceptualisation articulate the nature of the parts of the system and the inter-causal relationships of the parts and how these relations serves as the underlying mechanism of the system that presents an explanatory knowledge

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