Houston:
An Intelligent Requirements Advisor

SERC AI4SE/SE4AI Workshop 2020

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VIRGINIA TECH™

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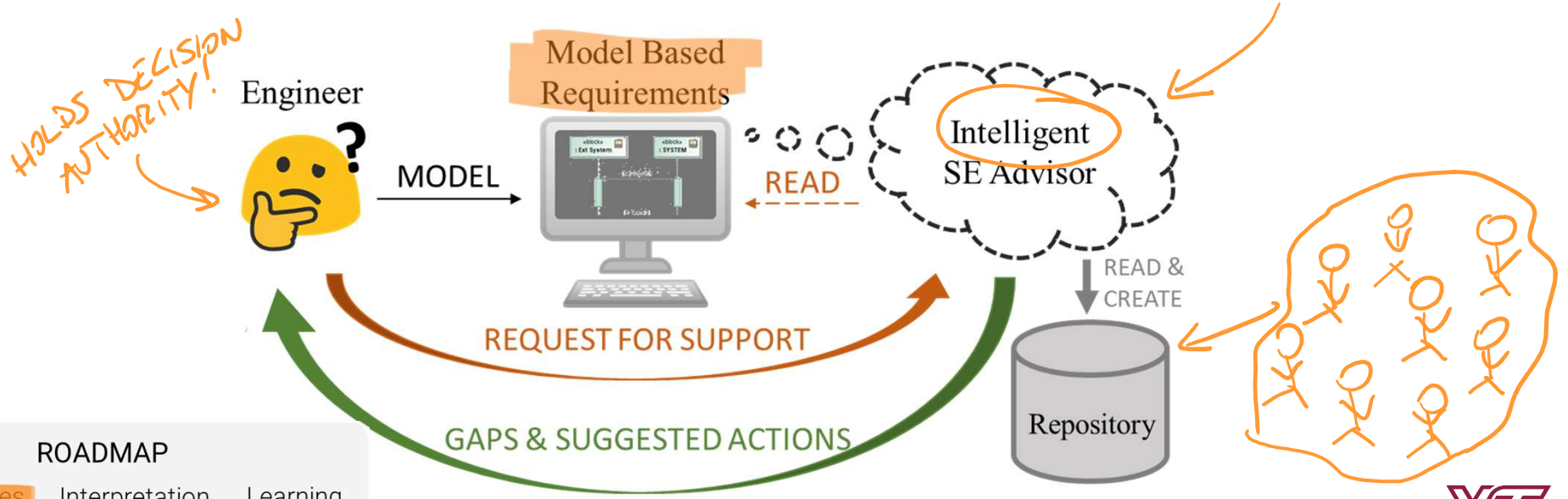
Requirements | Formulation of engineering **problems** → *The system shall do A.*

COMPLETENESS

Gaps allow solutions that are **not fit for purpose**

Impossible to demonstrate; can only be pursued

Depend on resources, experience, knowledge, & talent of **engineer**



ROADMAP

Structural rules | Interpretation | Learning

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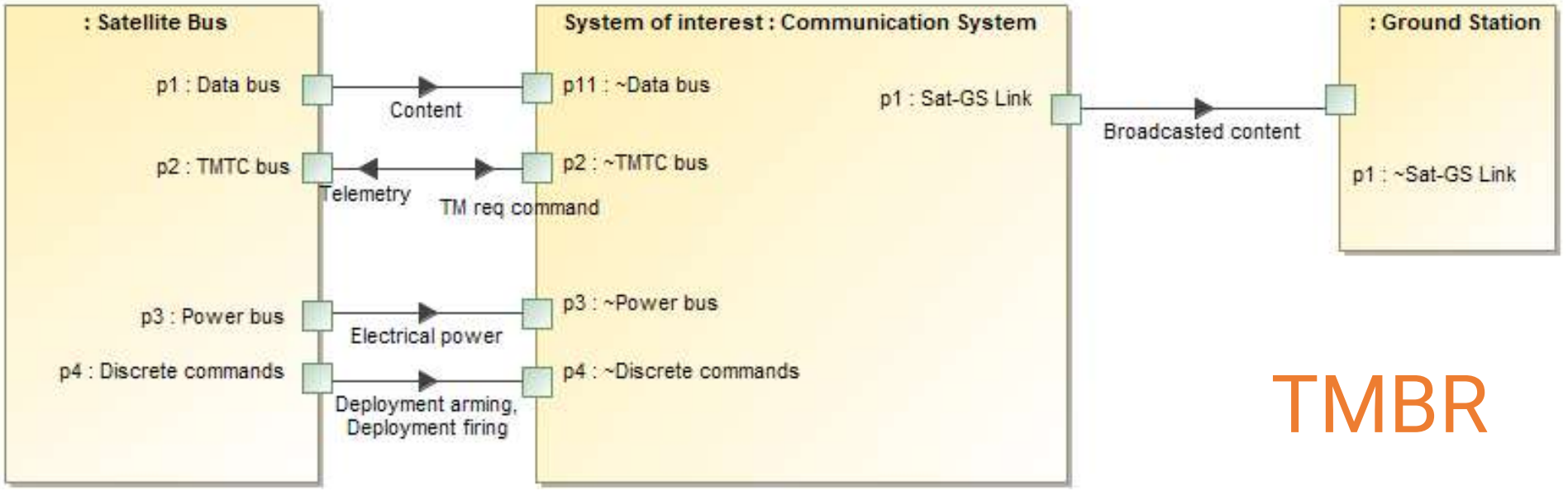
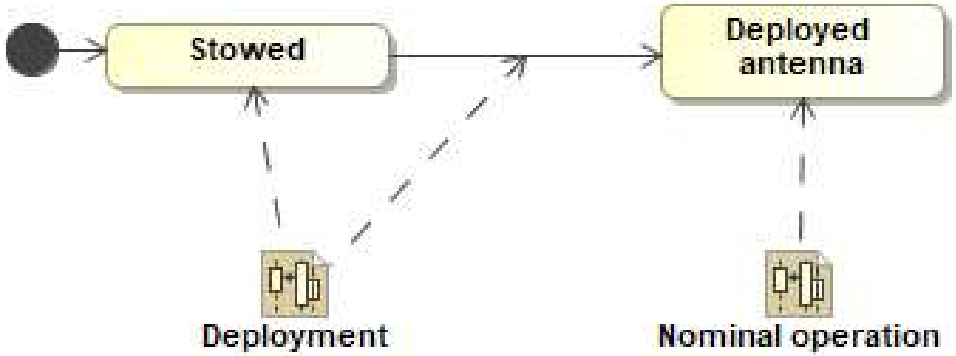


TMBR

Deploy antenna

Broadcast content

Provide health status



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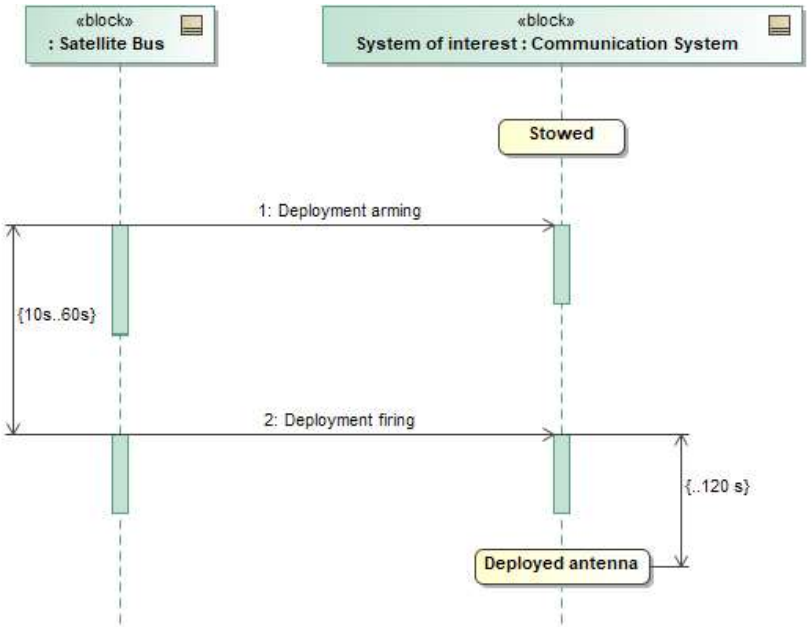
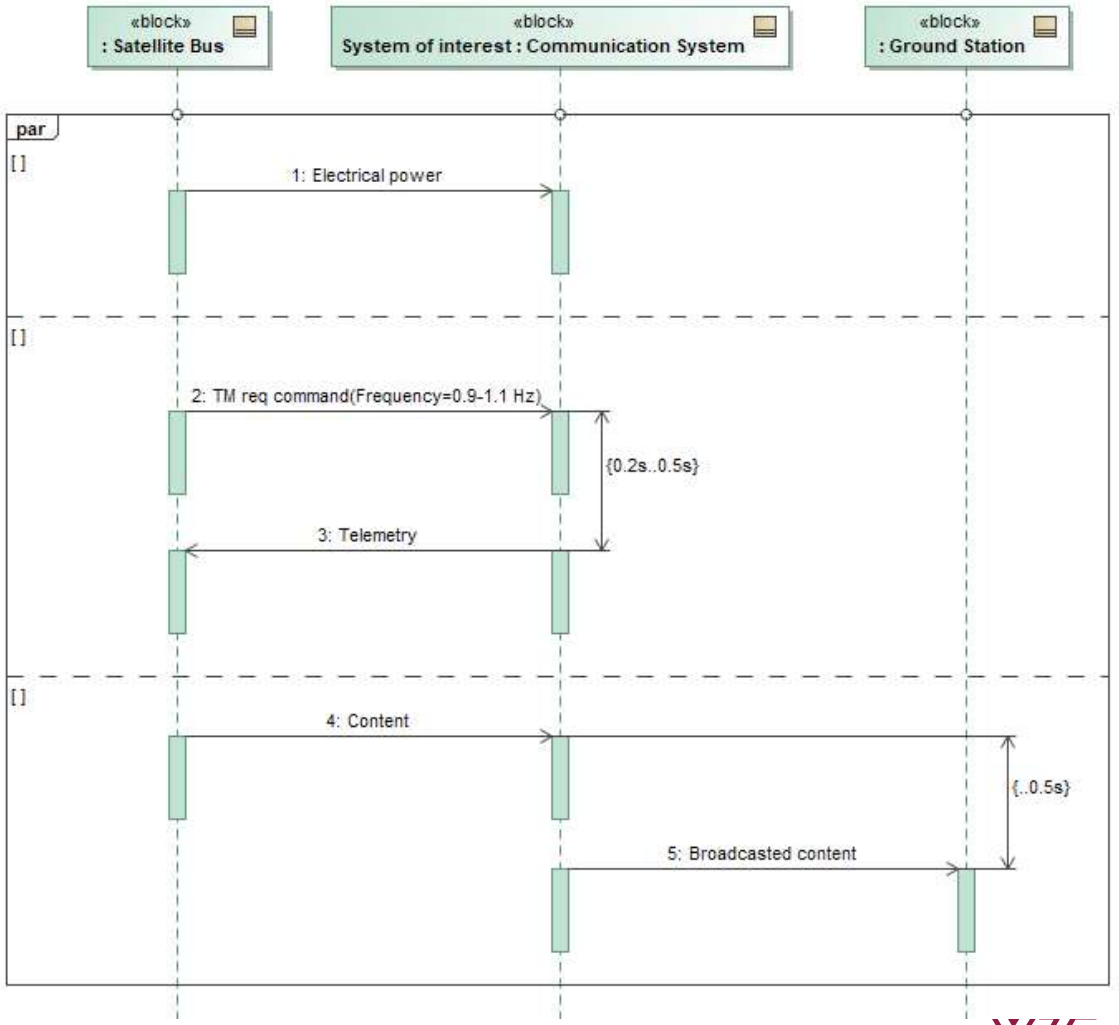


This is only a proof-of-CONCEPT!



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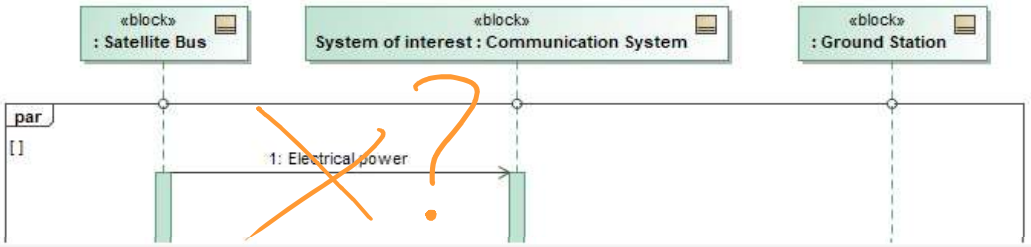
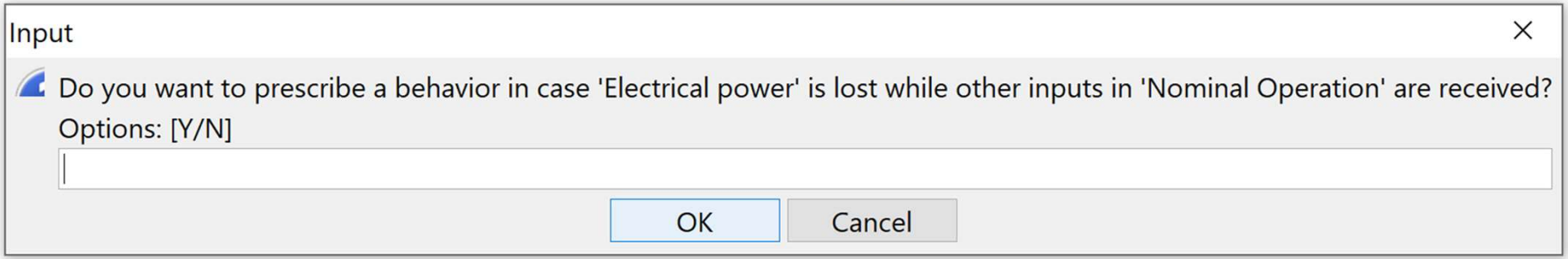
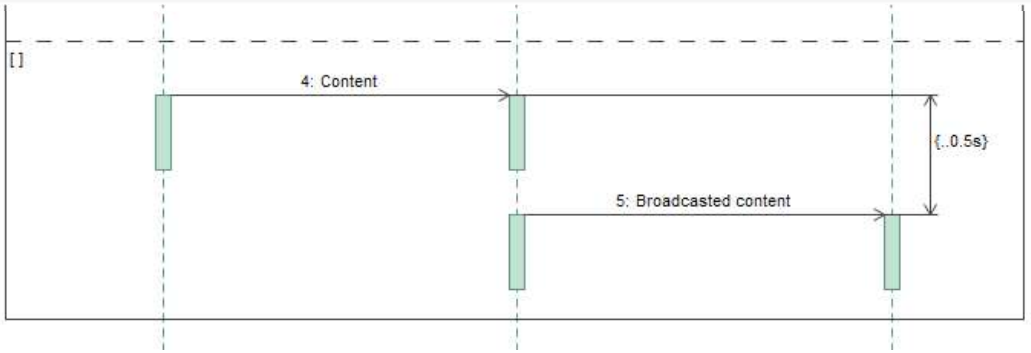
RULE 1

No reception of expected input





- No
- Yes
  - Do same
  - New behavior
  - Withstand prior w/o degradation
  - Withstand prior w/ degradation



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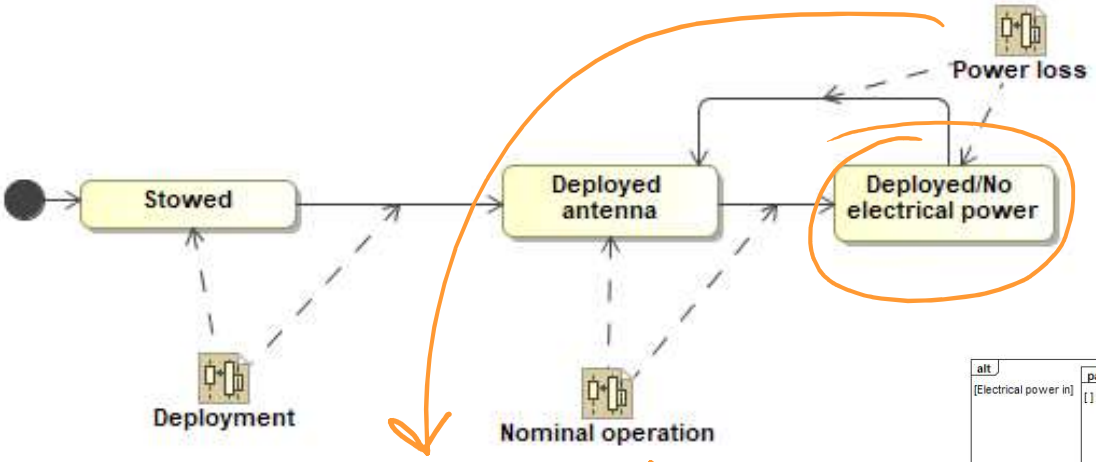

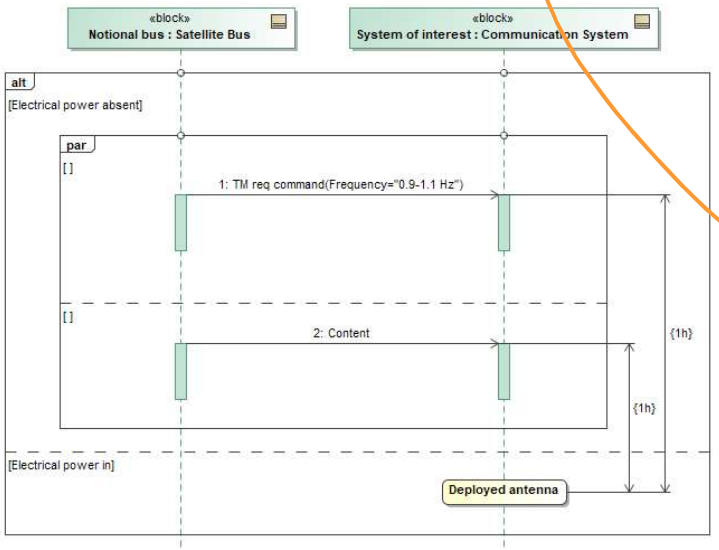

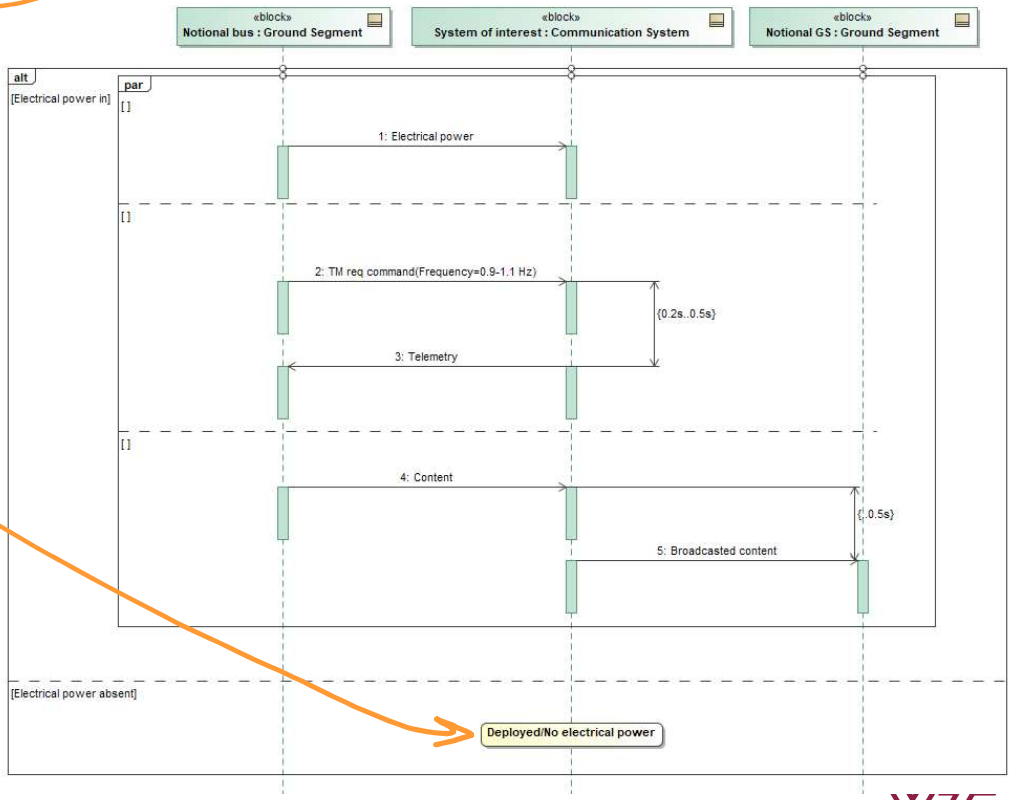

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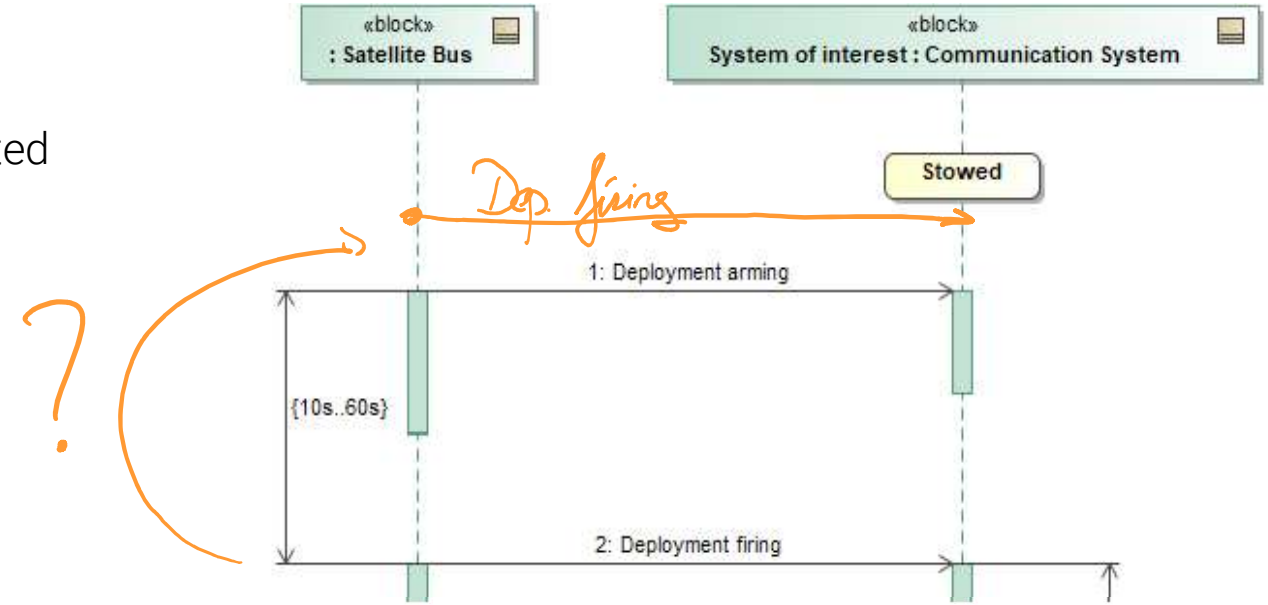
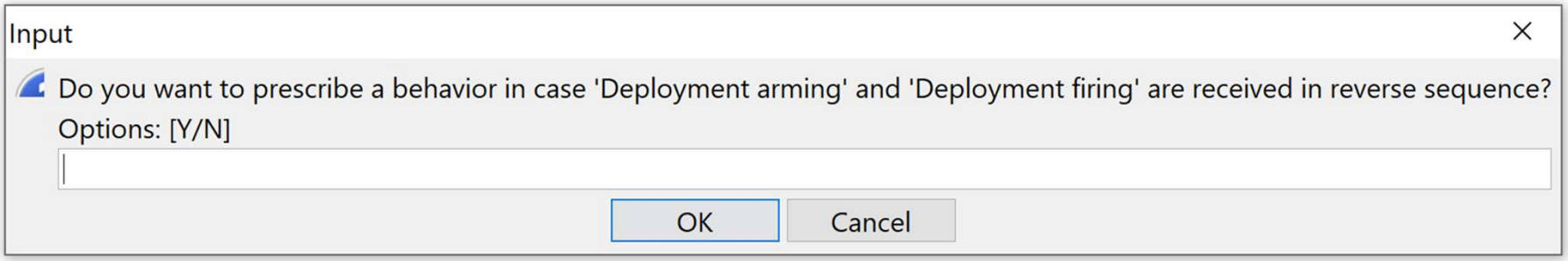
RULE 2

Inputs received in unexpected sequence





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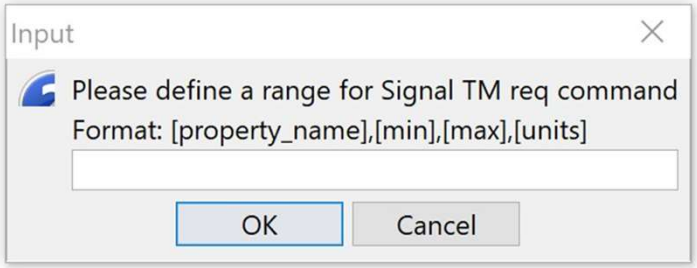
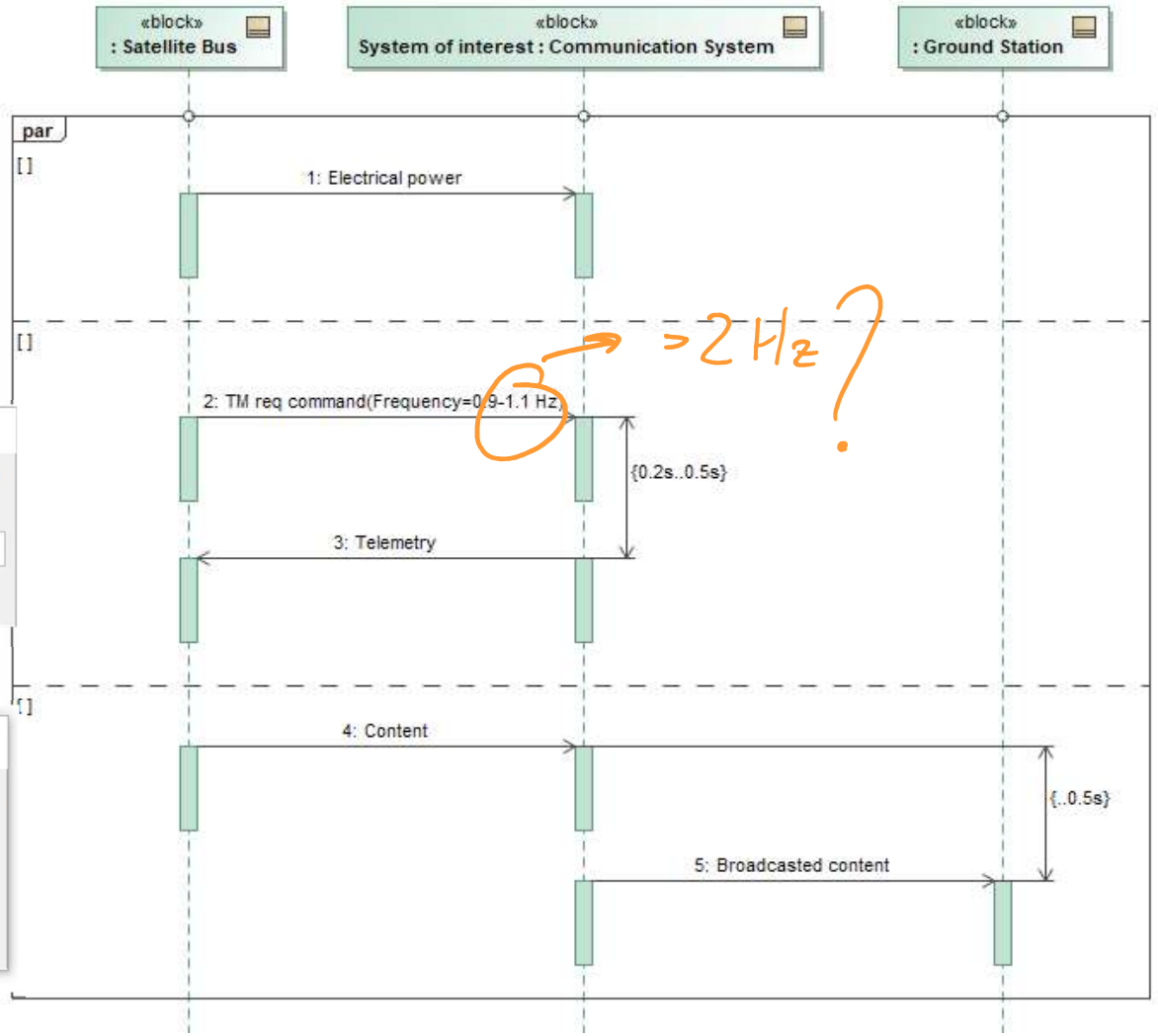
RULE 3

Out-of-range inputs





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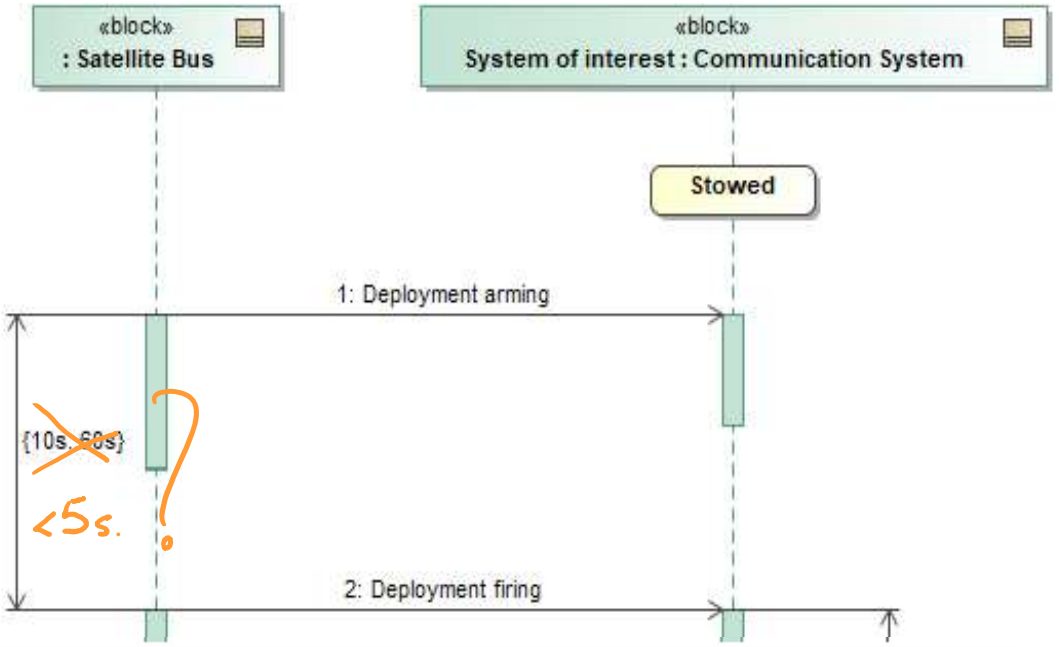
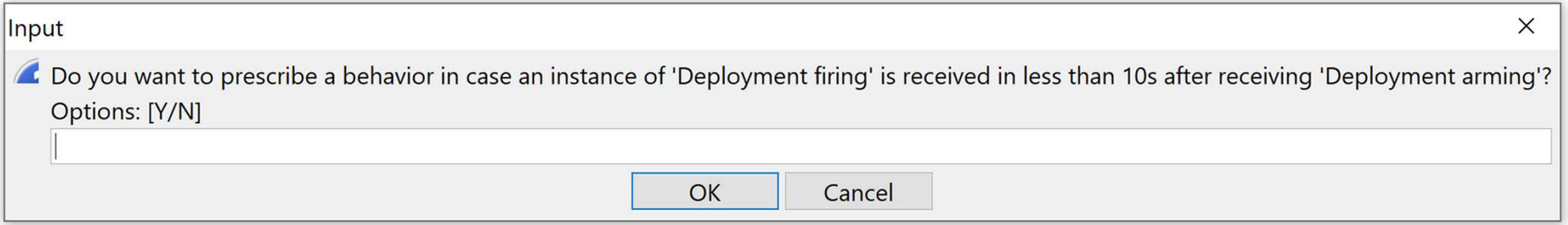
RULE 4

Unexpected time intervals





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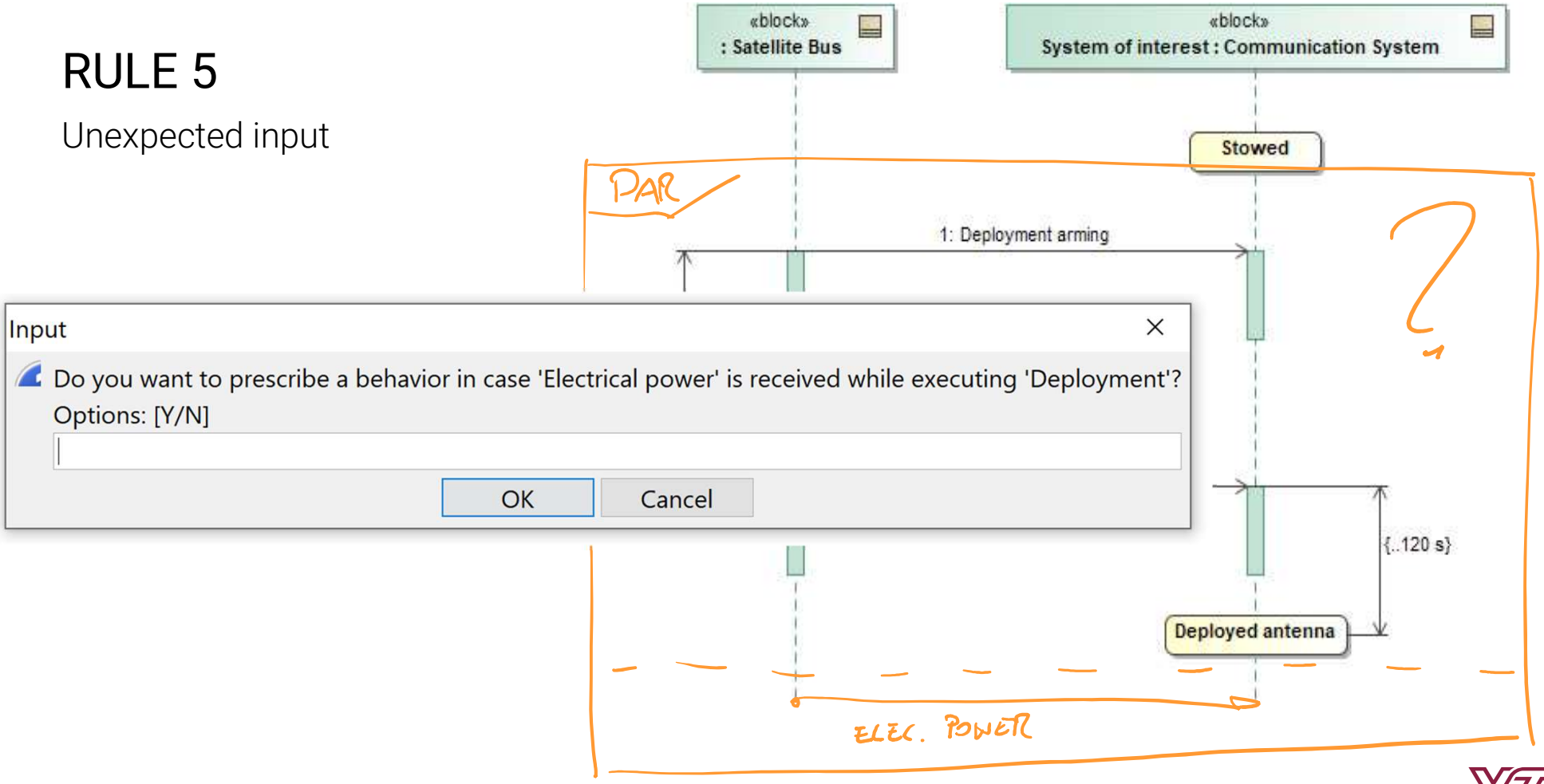
RULE 5

Unexpected input



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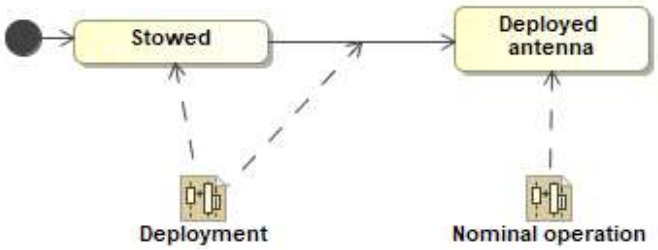
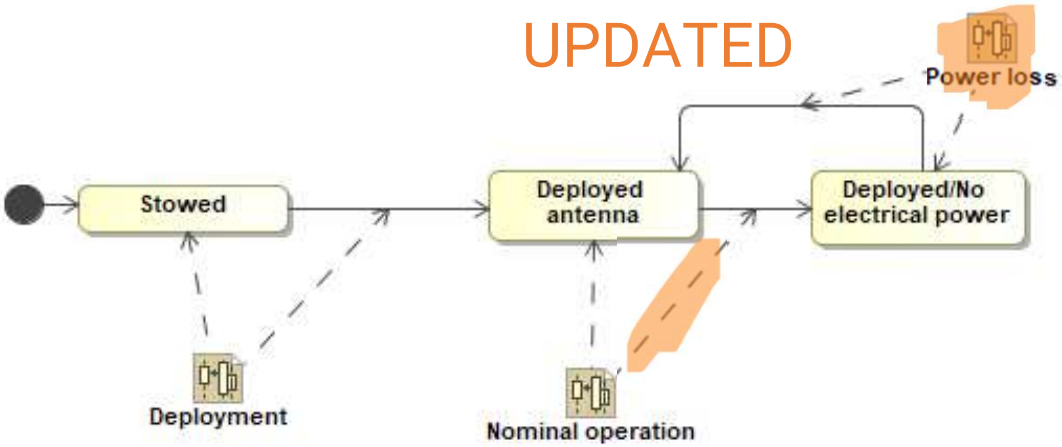
INITIAL



UPDATED



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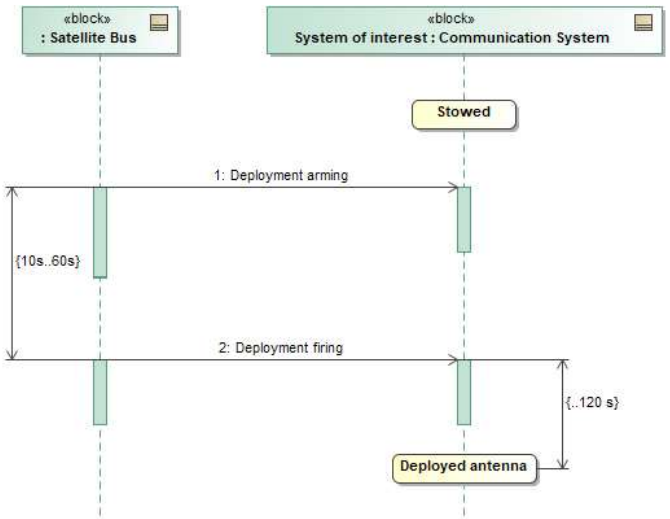

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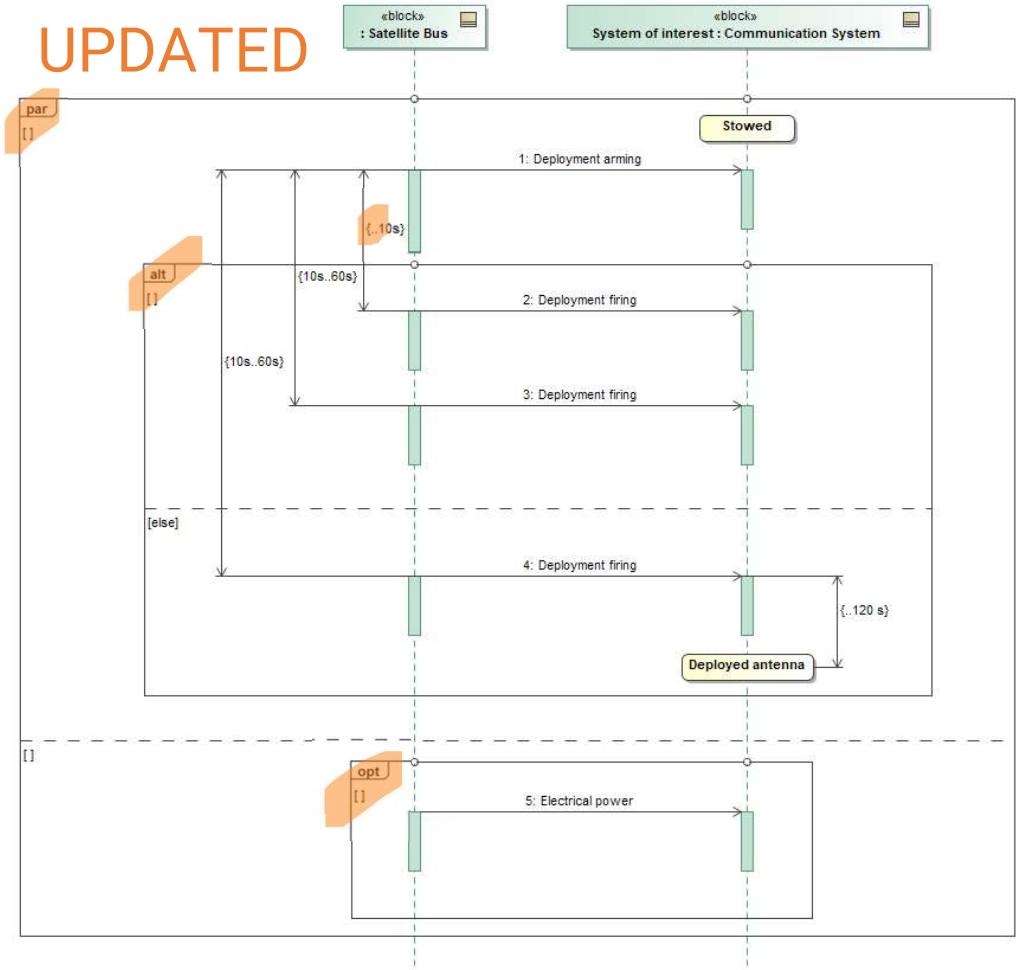

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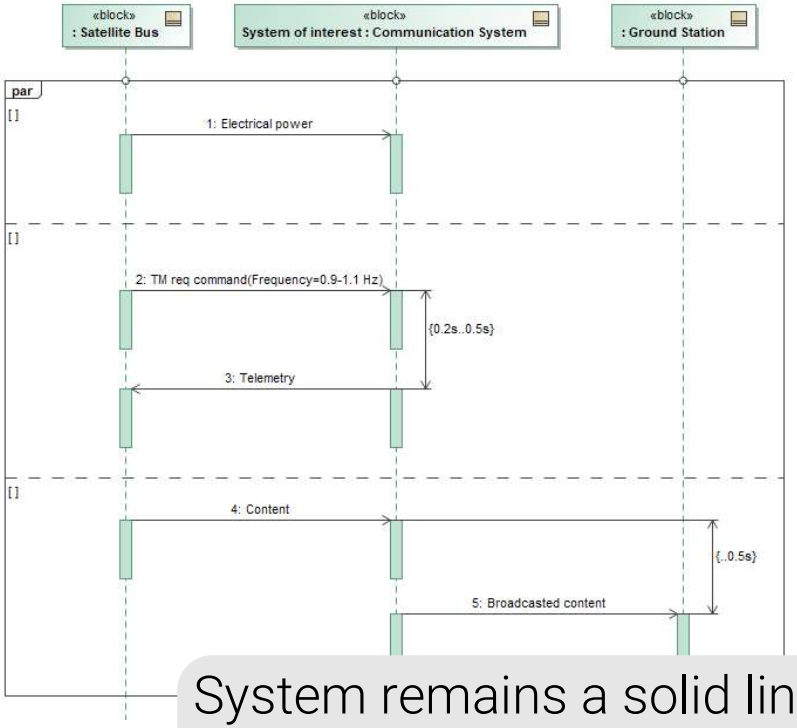
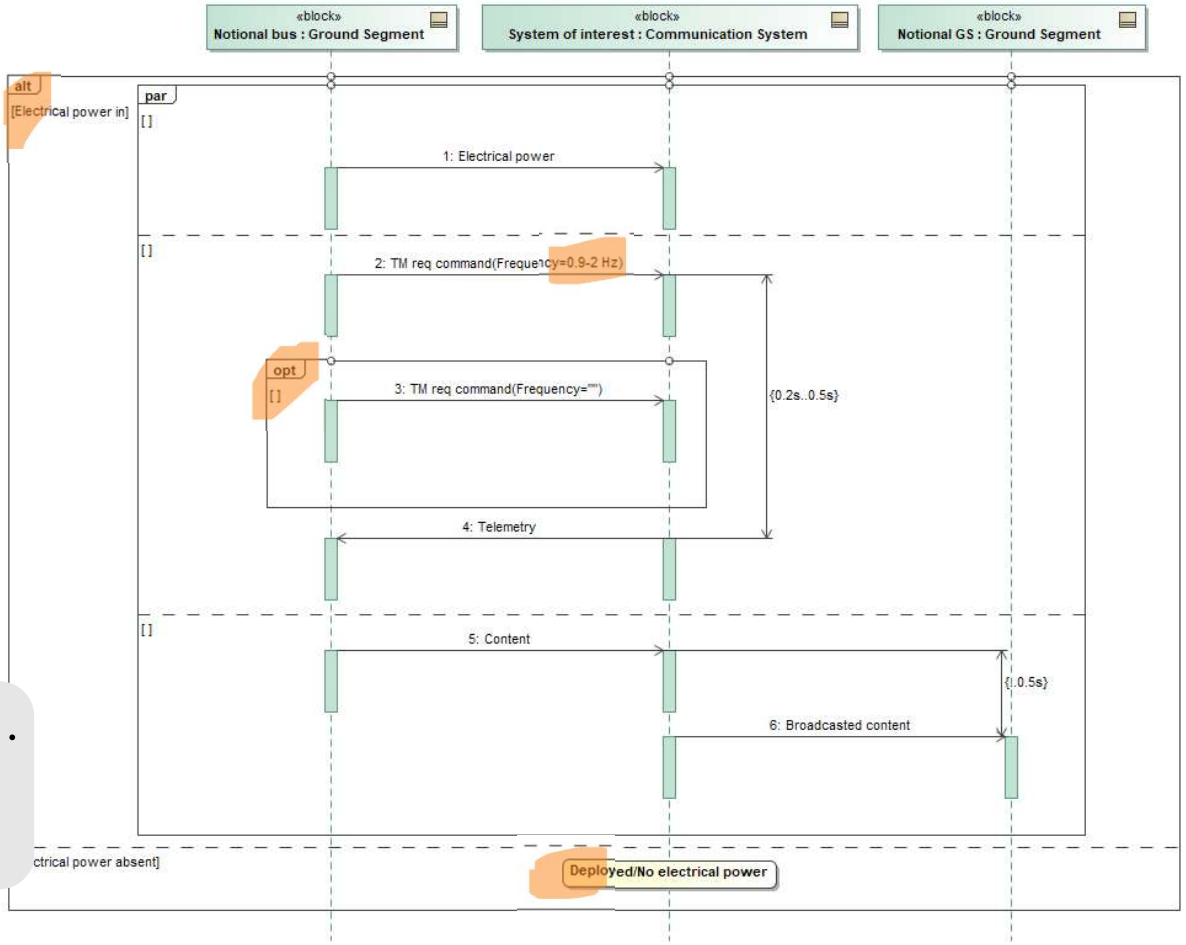
INITIAL



System remains a solid line...
no design decisions just
requirement identification!

UPDATED



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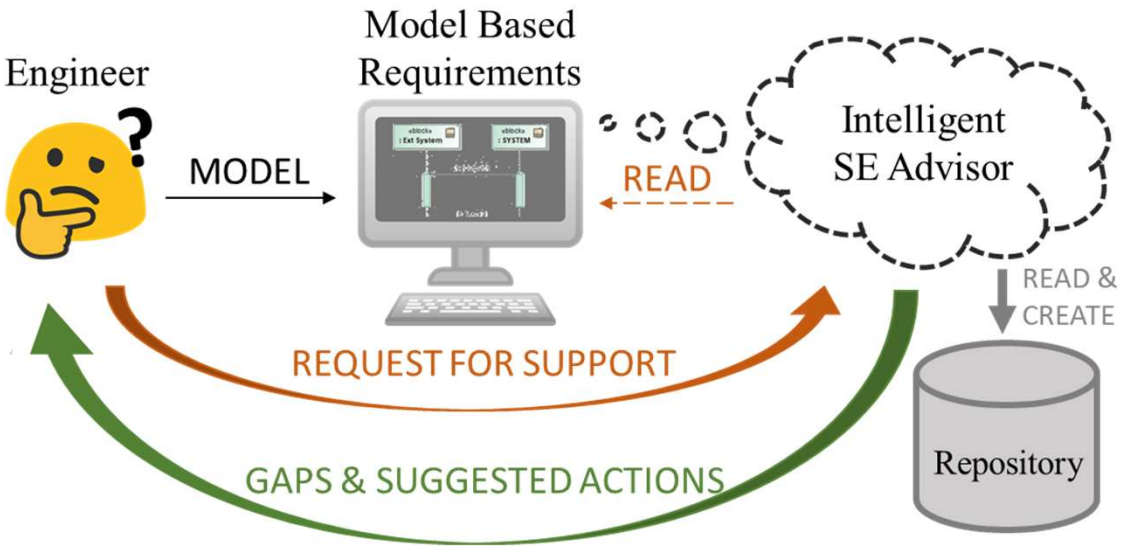
PURPOSE is to aid the engineer



This was only a proof-of-**CONCEPT**!

Requirements **COMPLETENESS**

ROADMAP

Structural rules | Interpretation | Learning

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THANK **YOU**

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