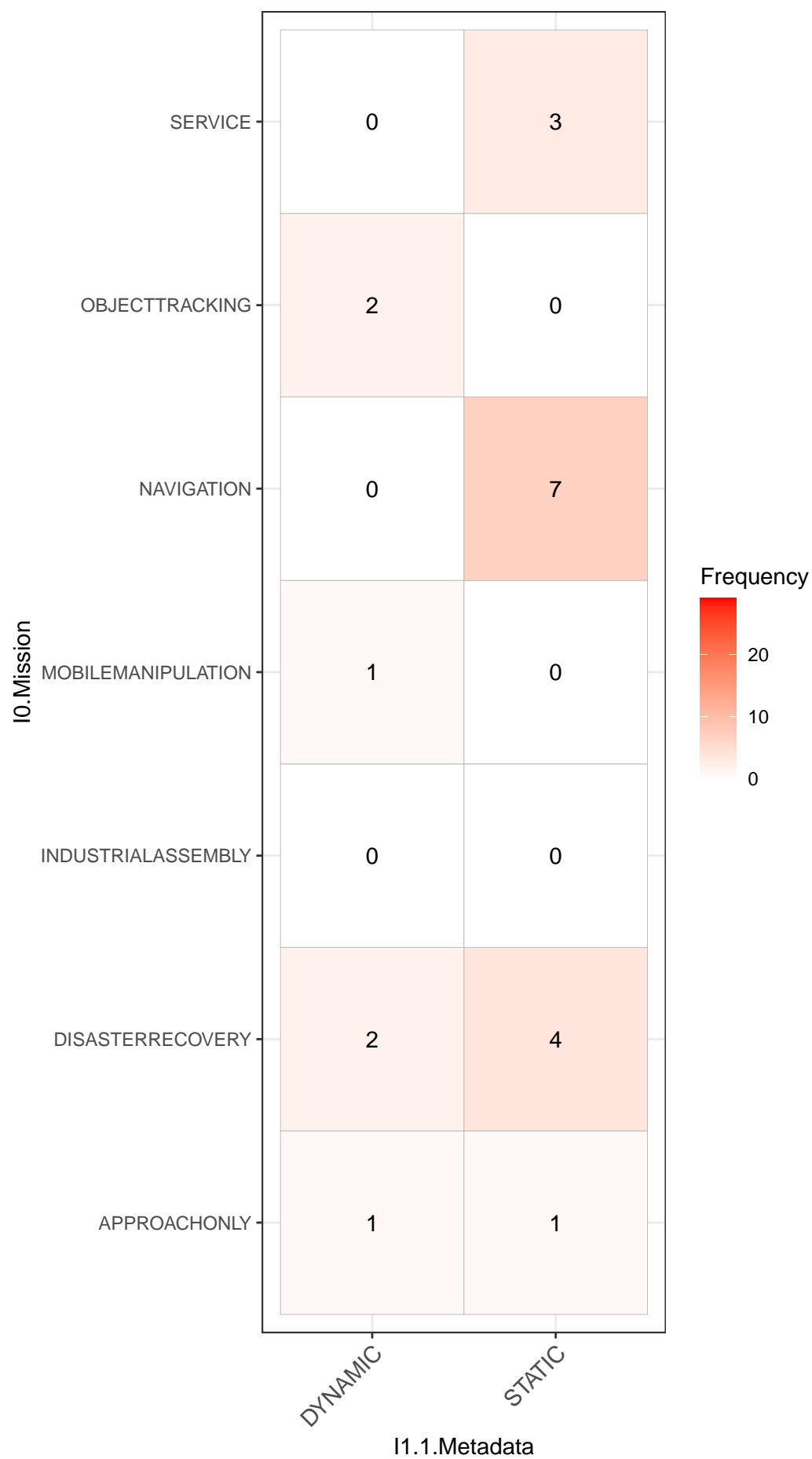
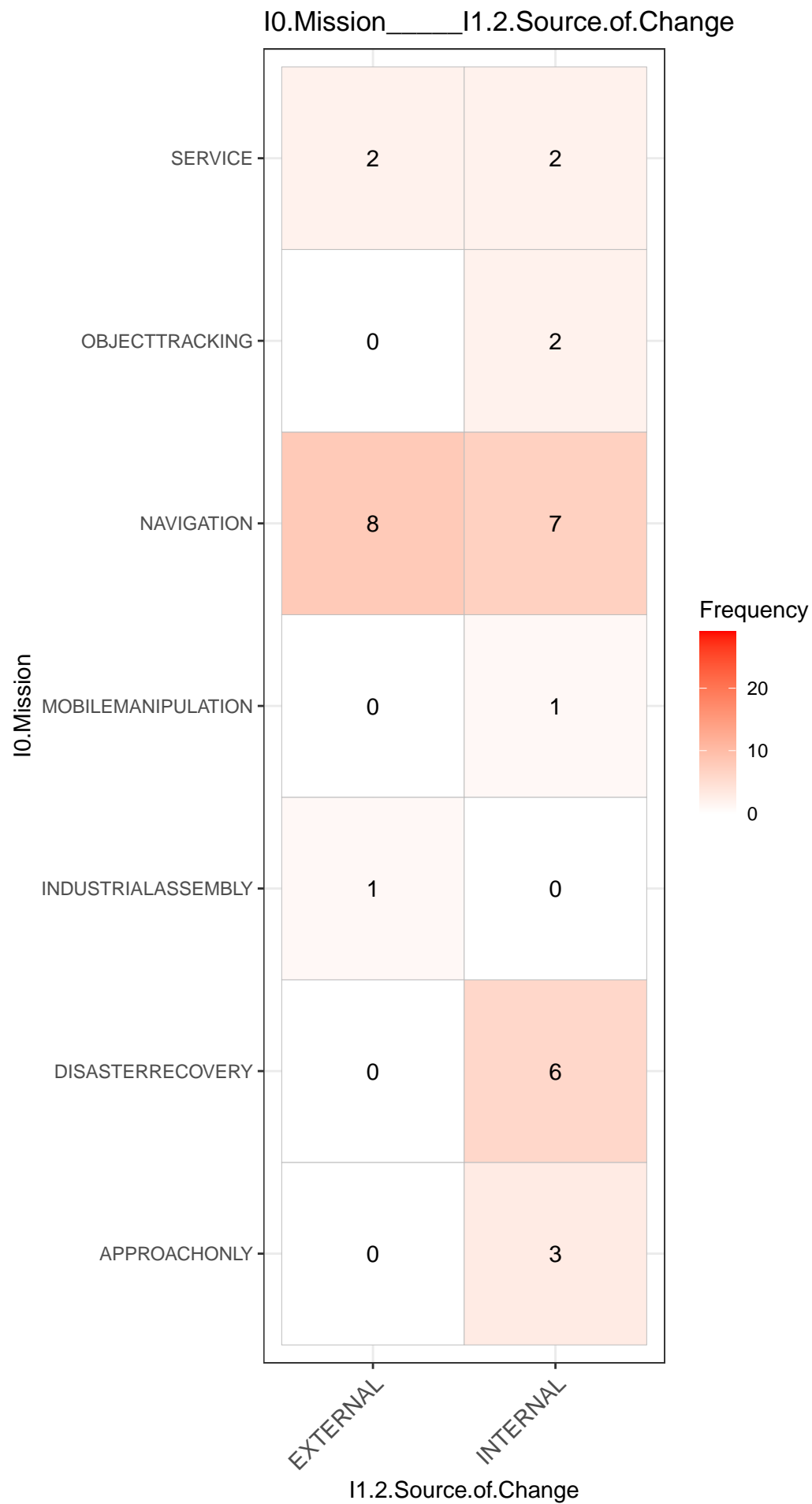
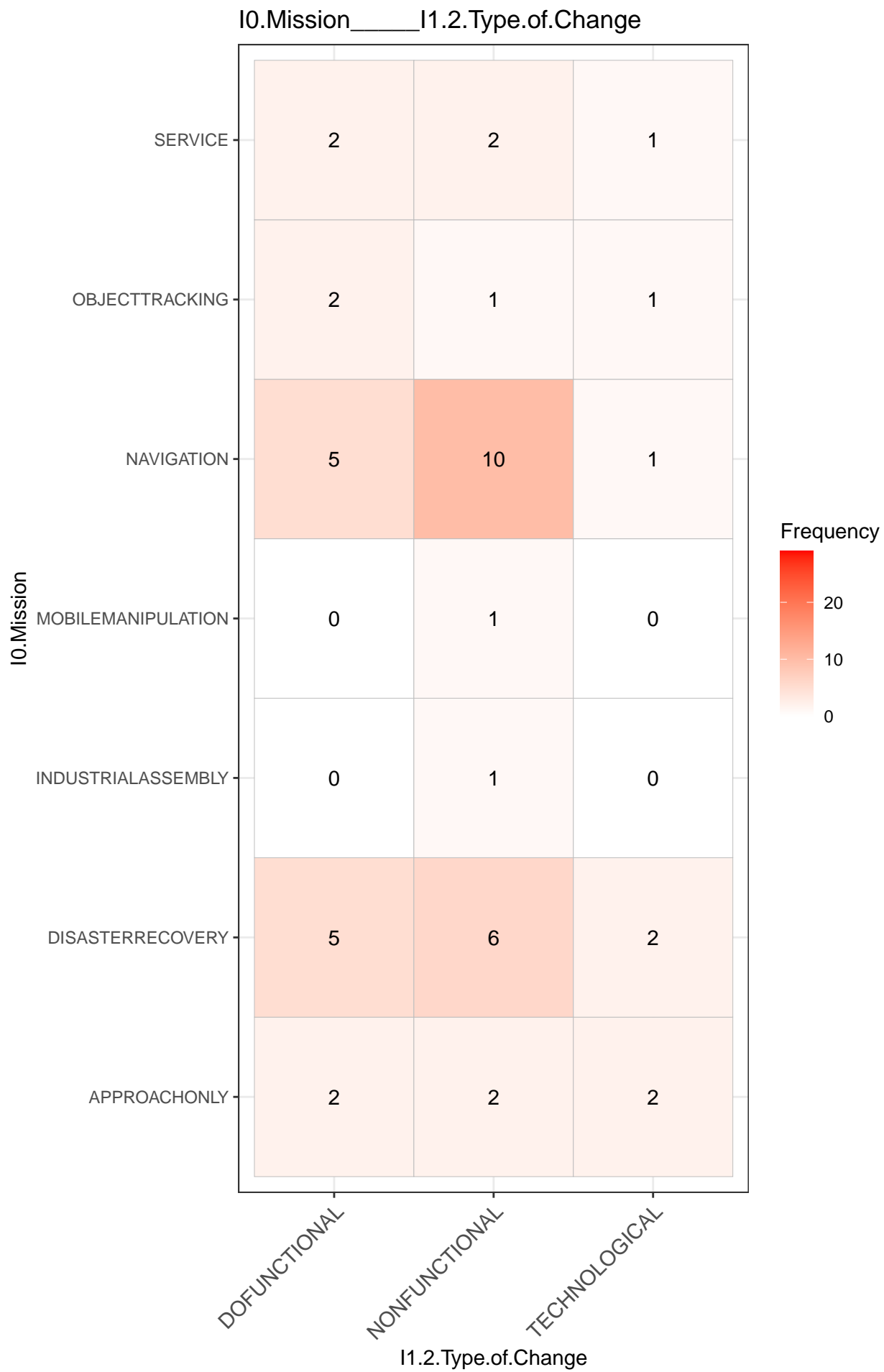
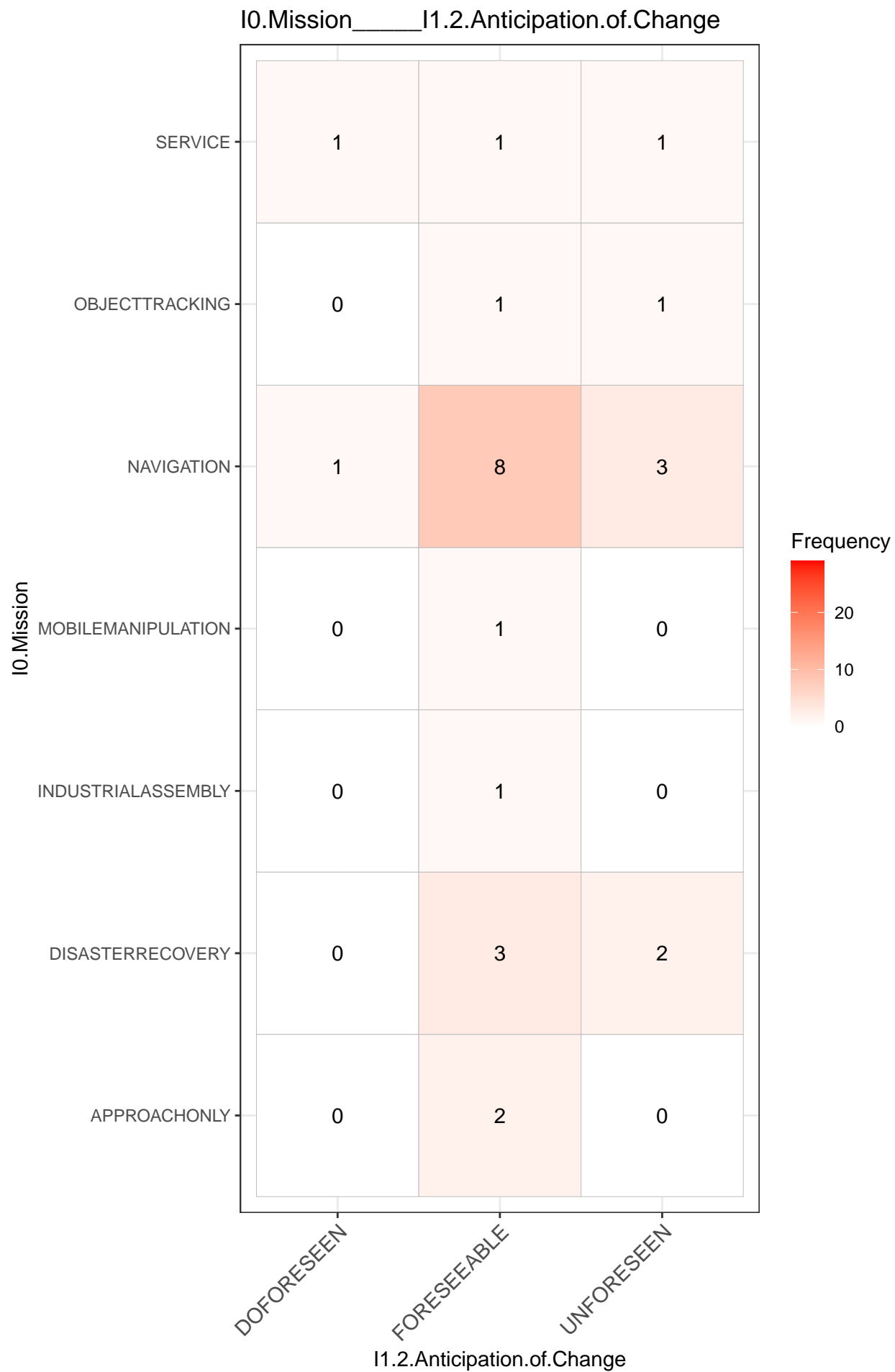


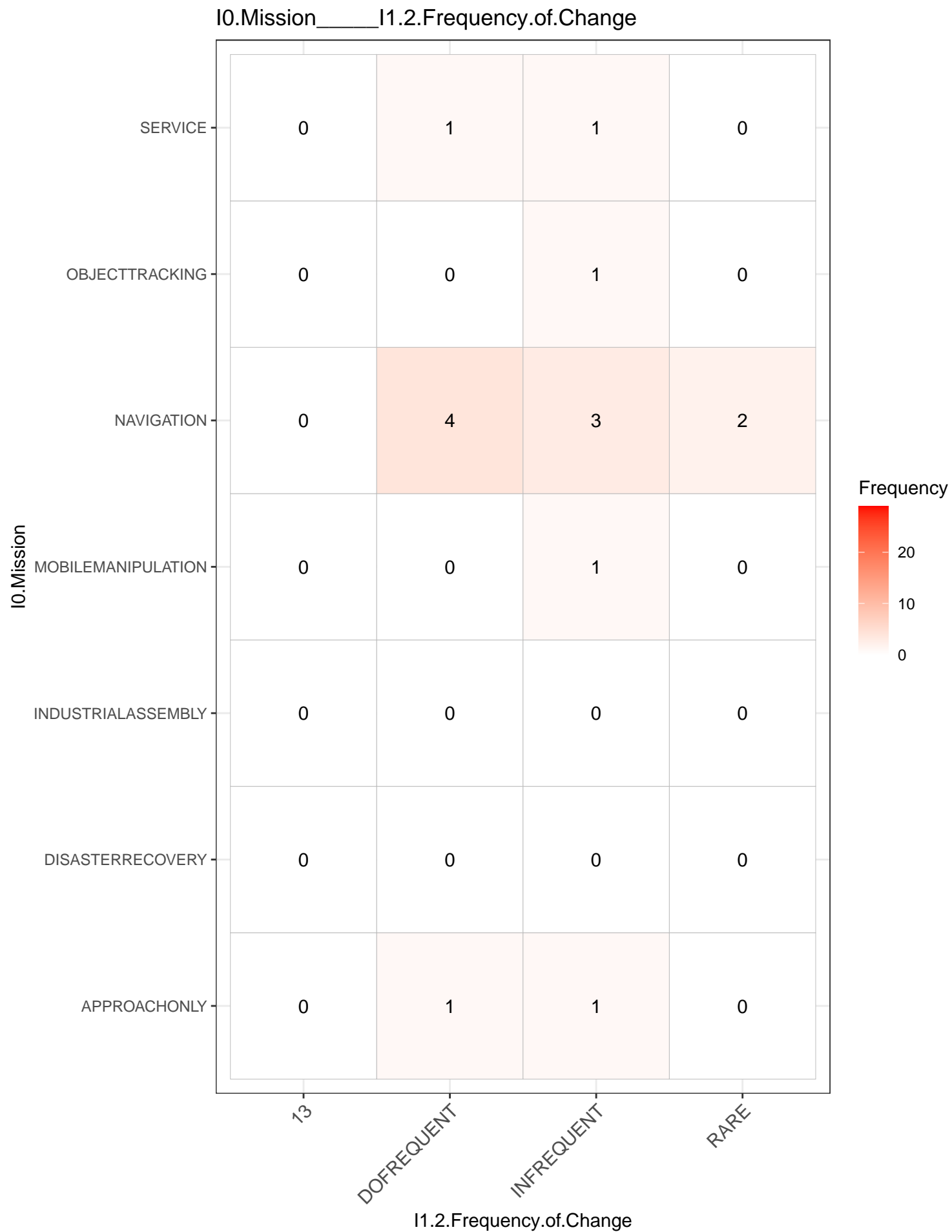
I0.Mission_____I1.1.Metadata

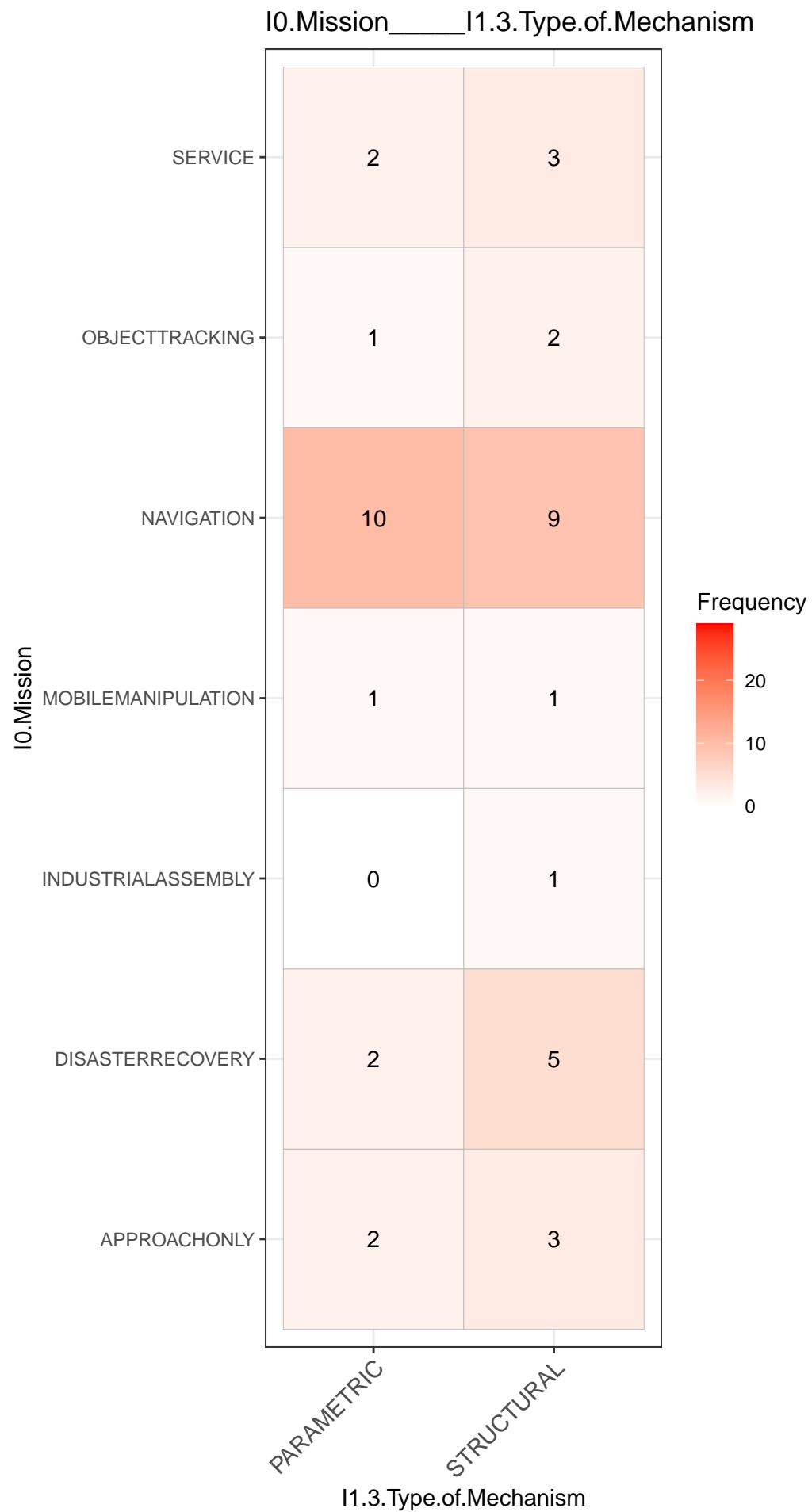


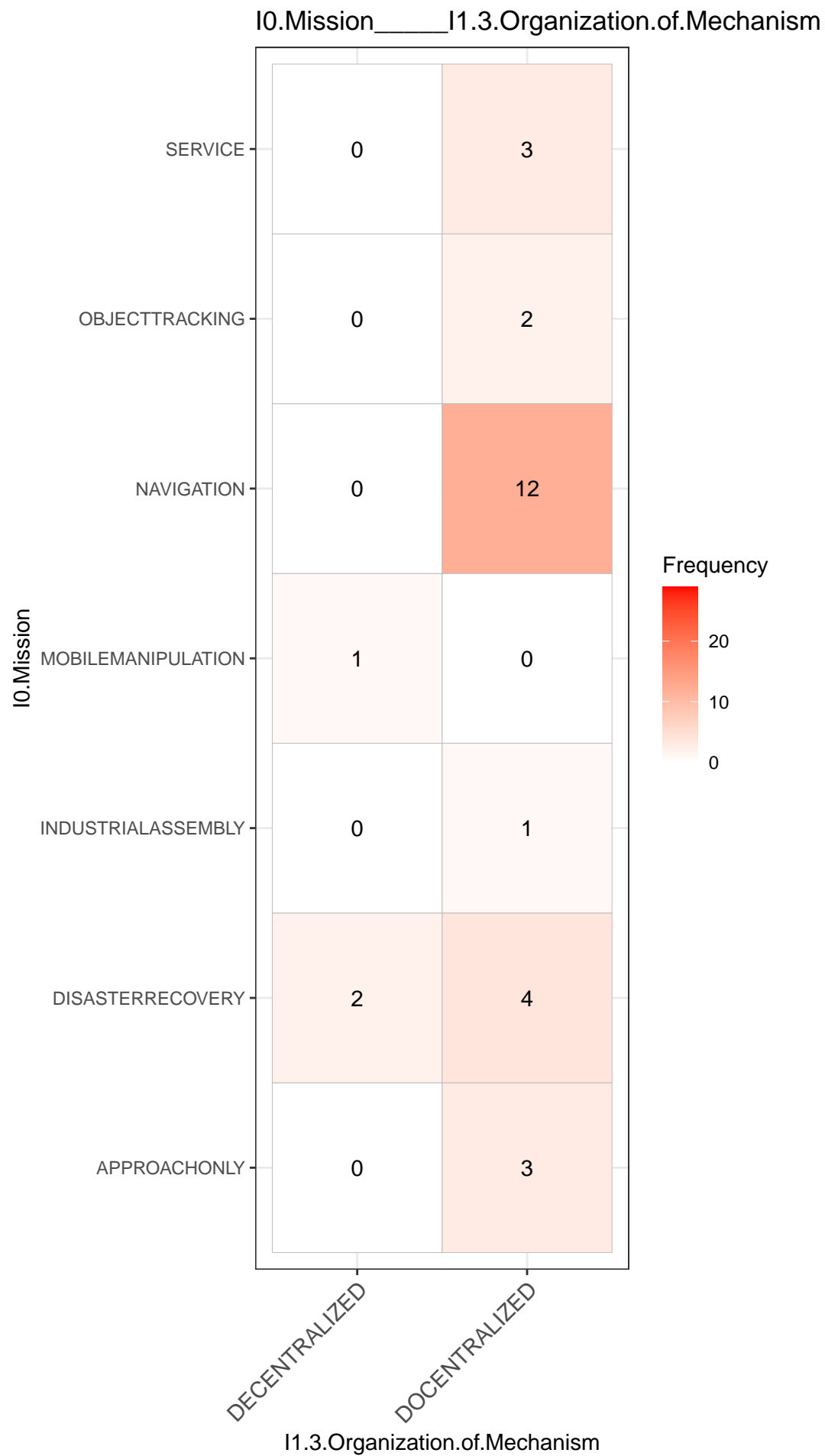


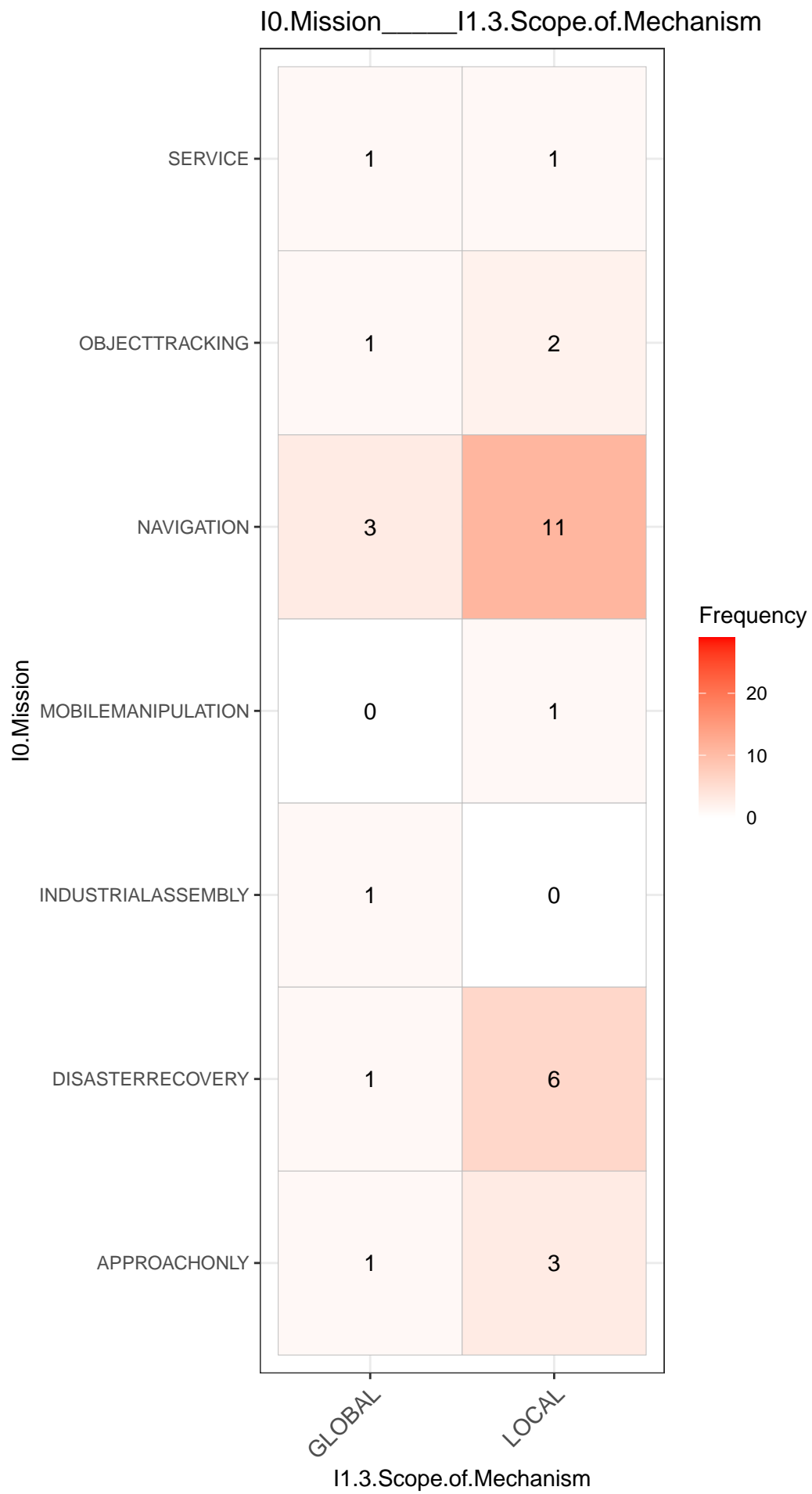


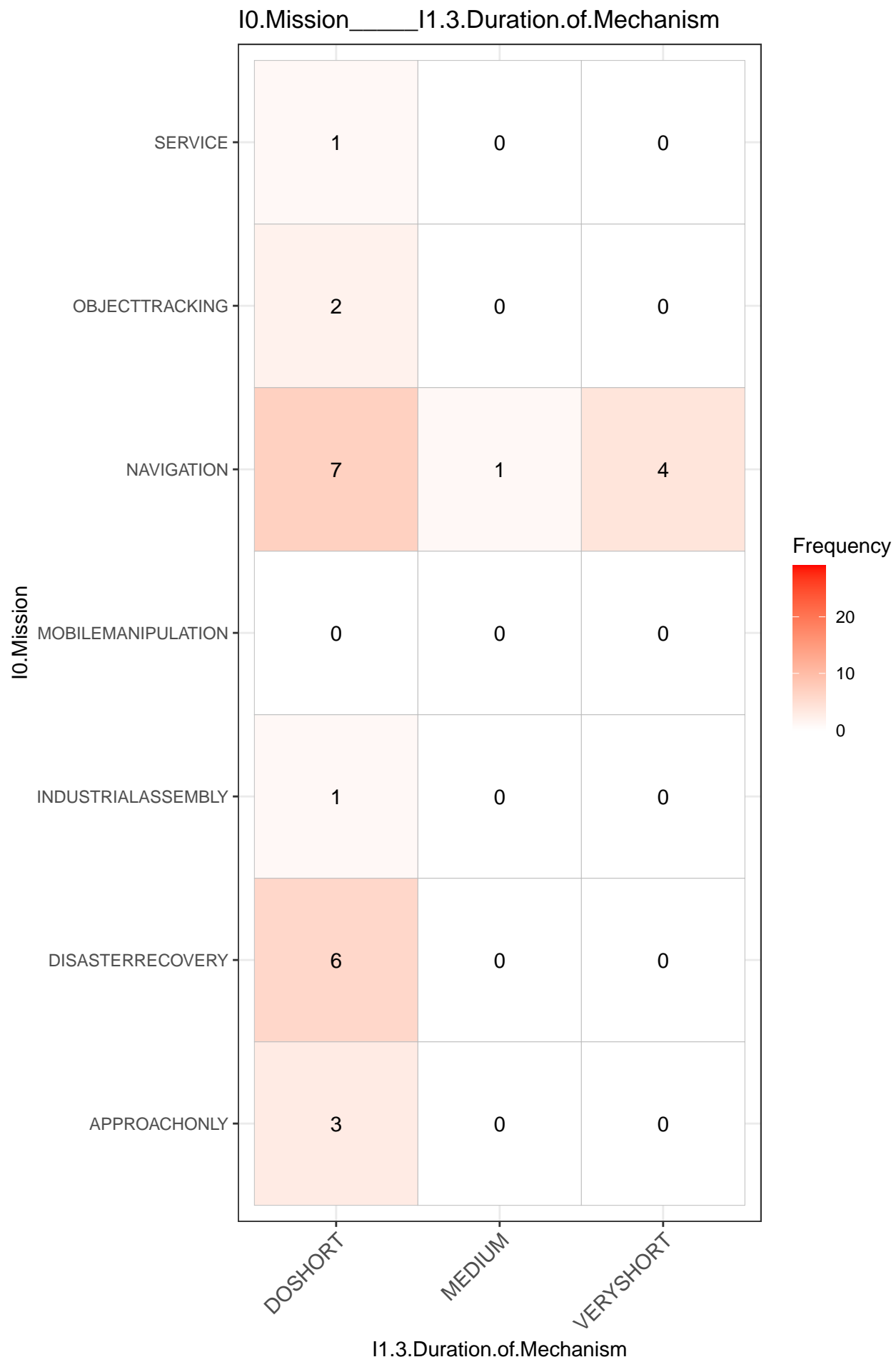


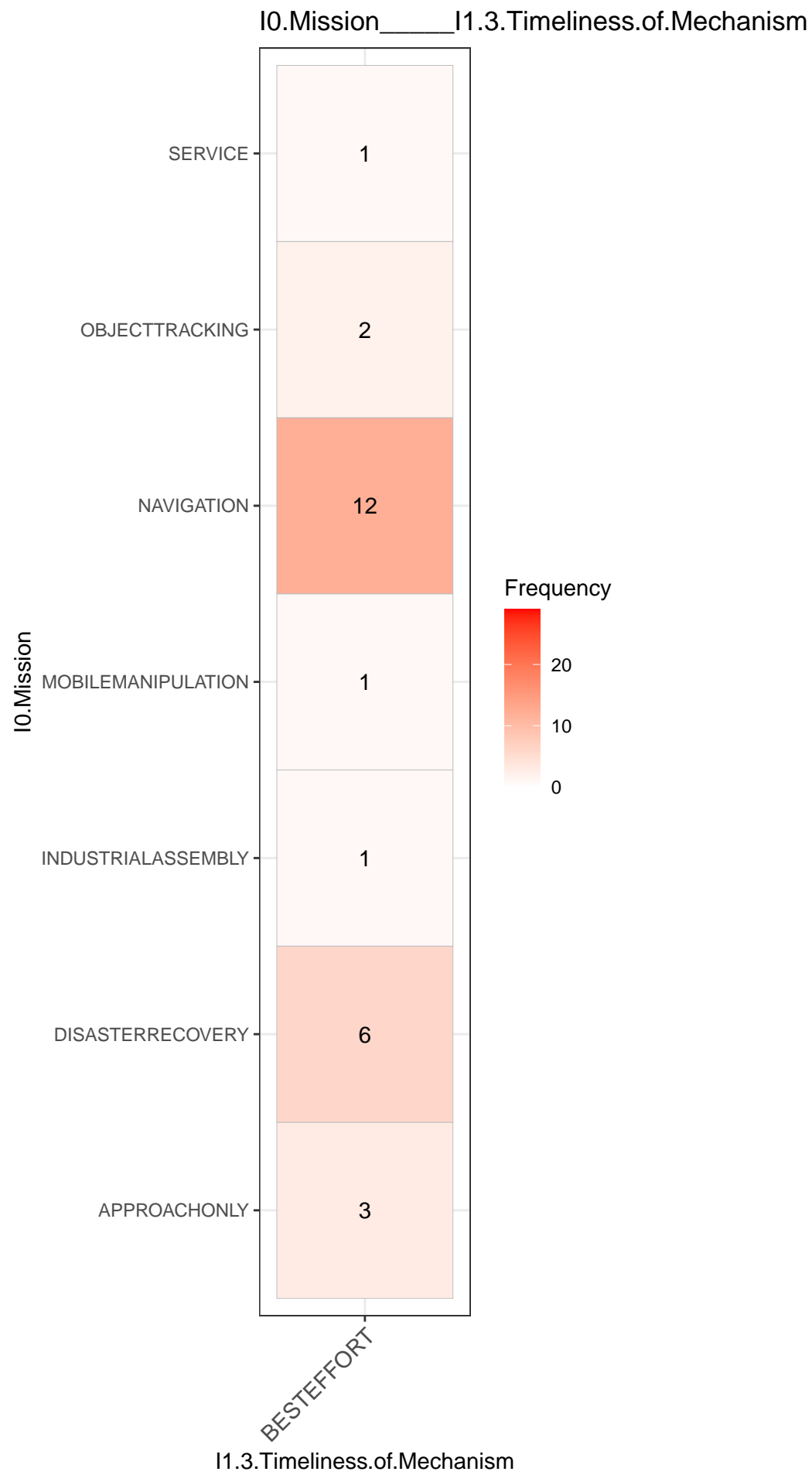


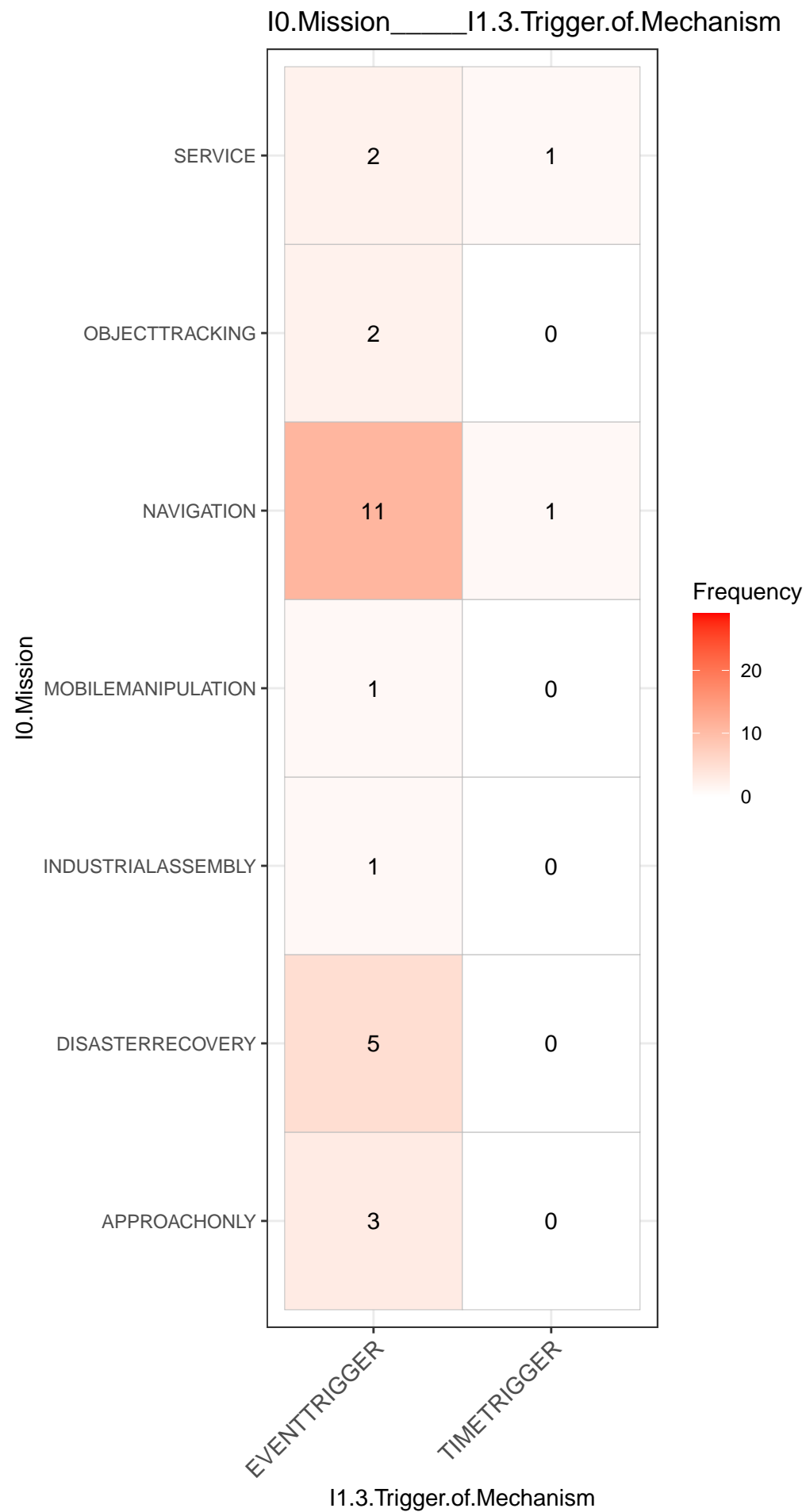


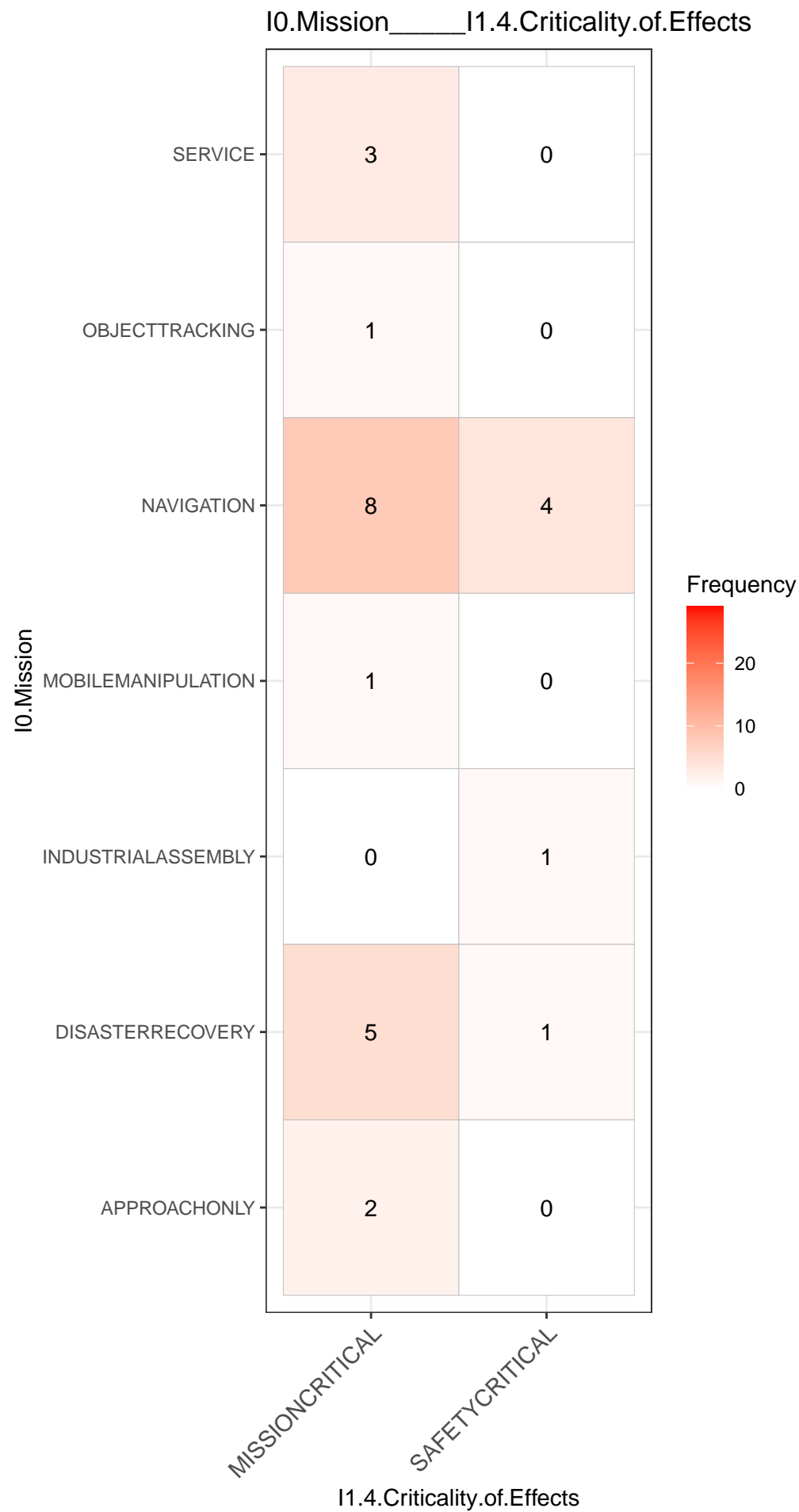


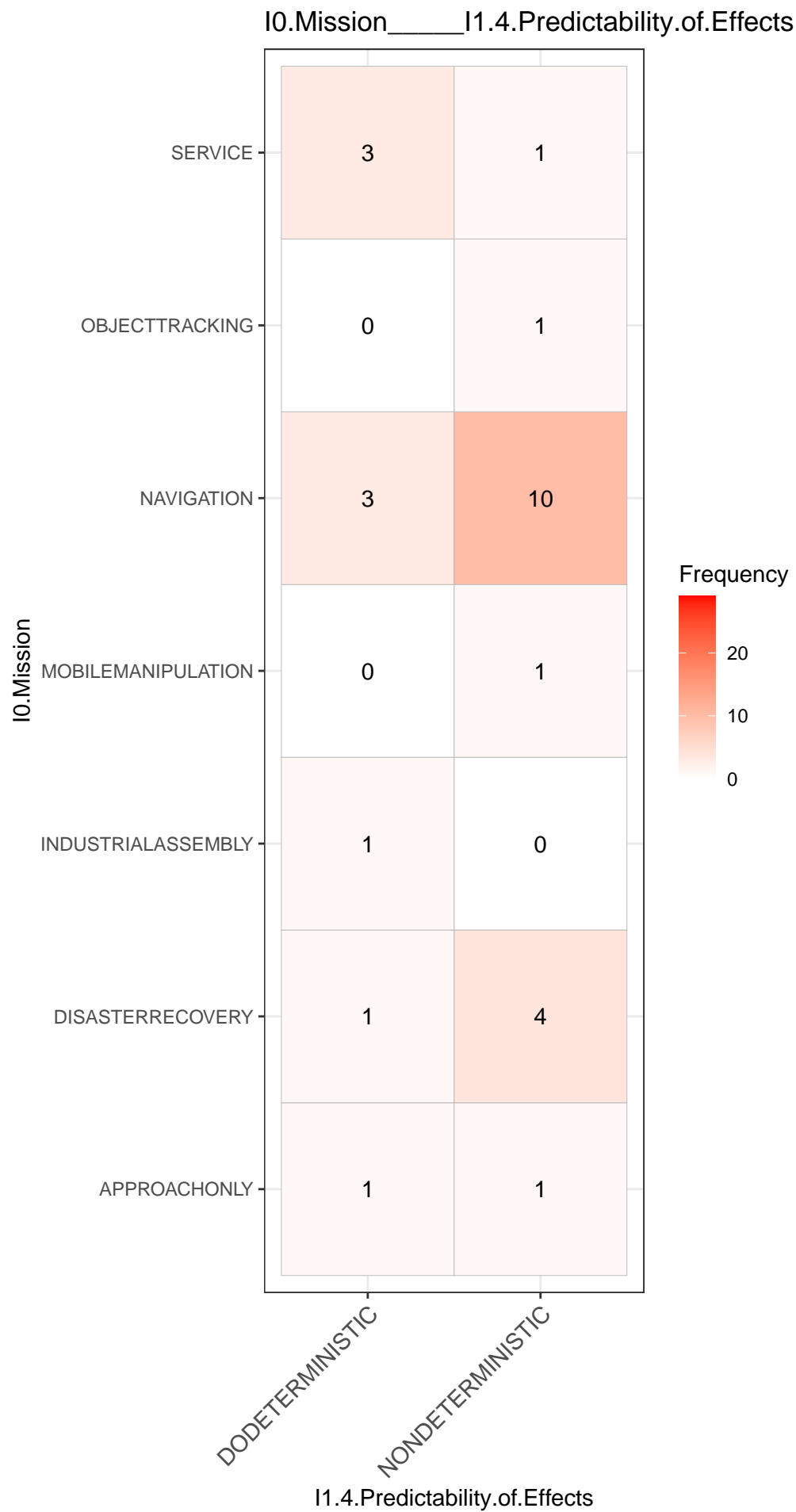


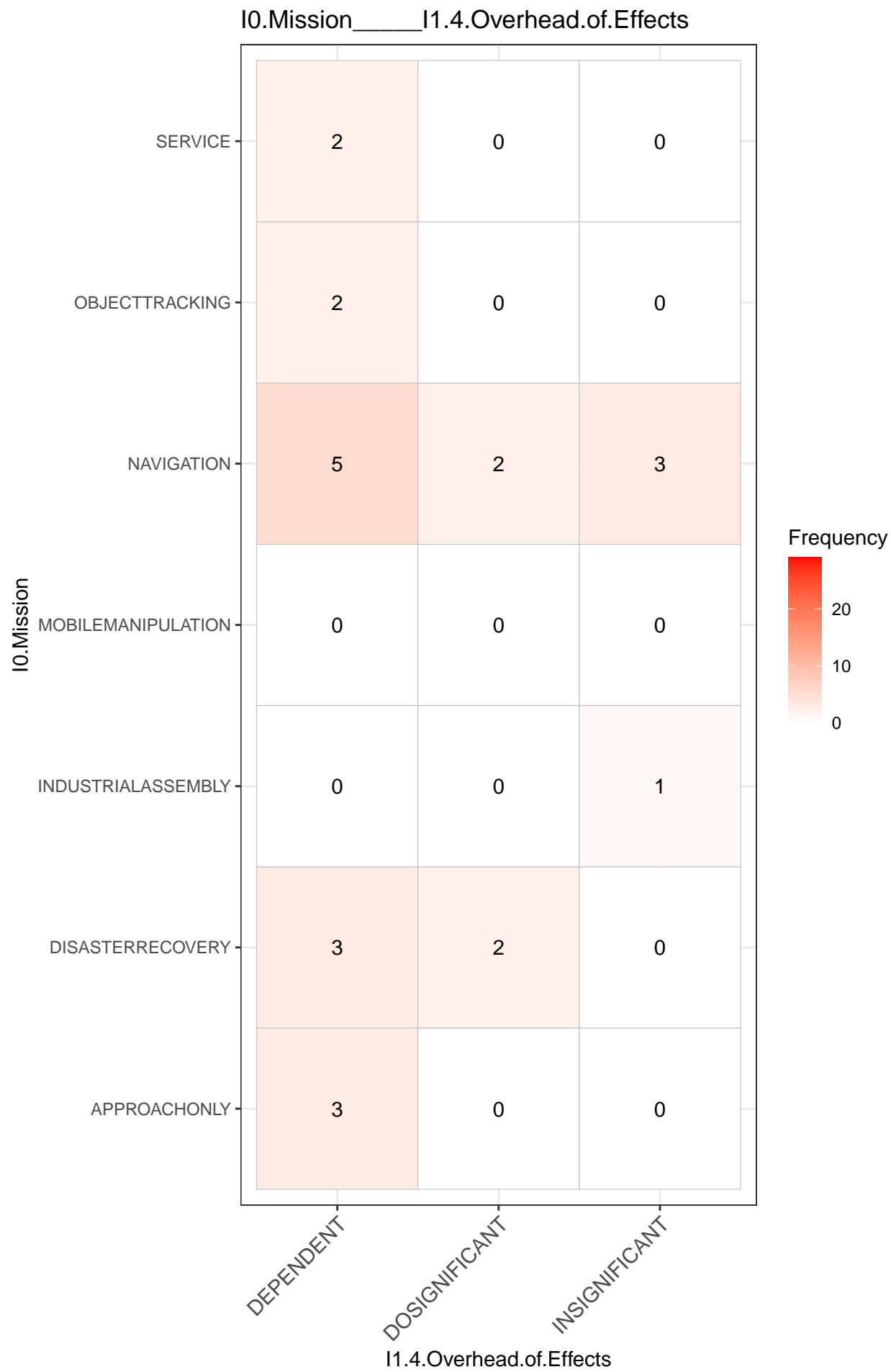


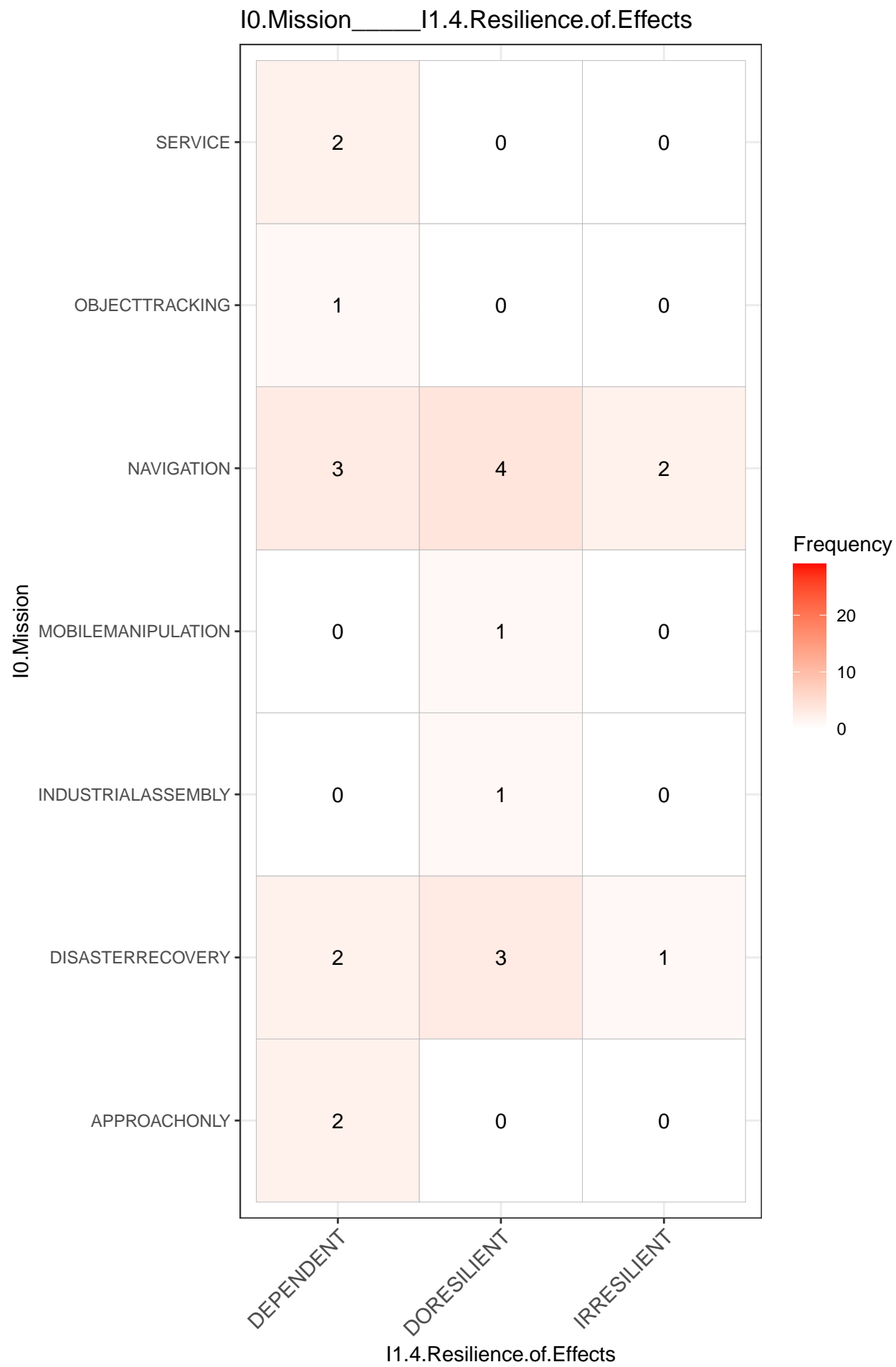


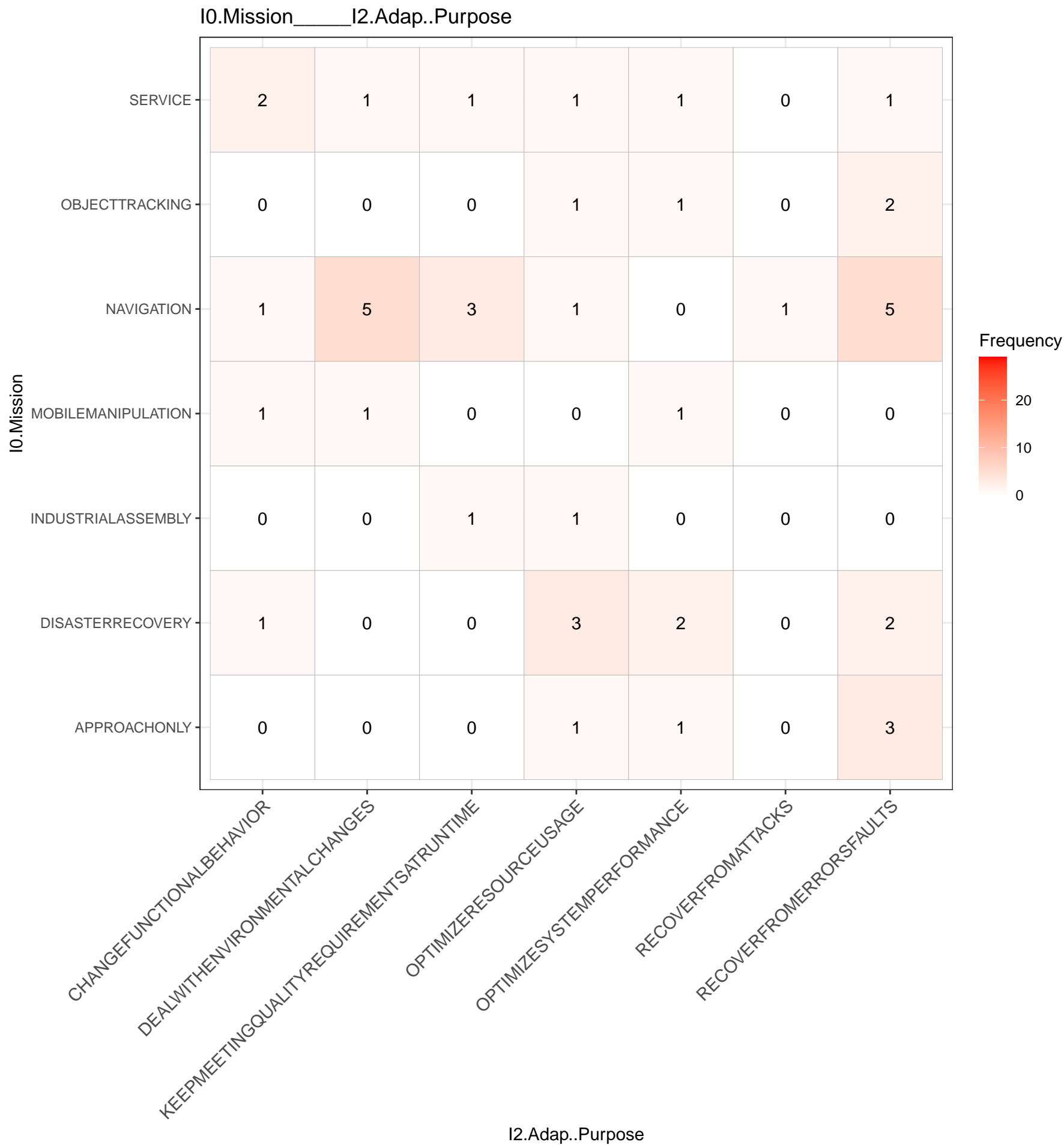


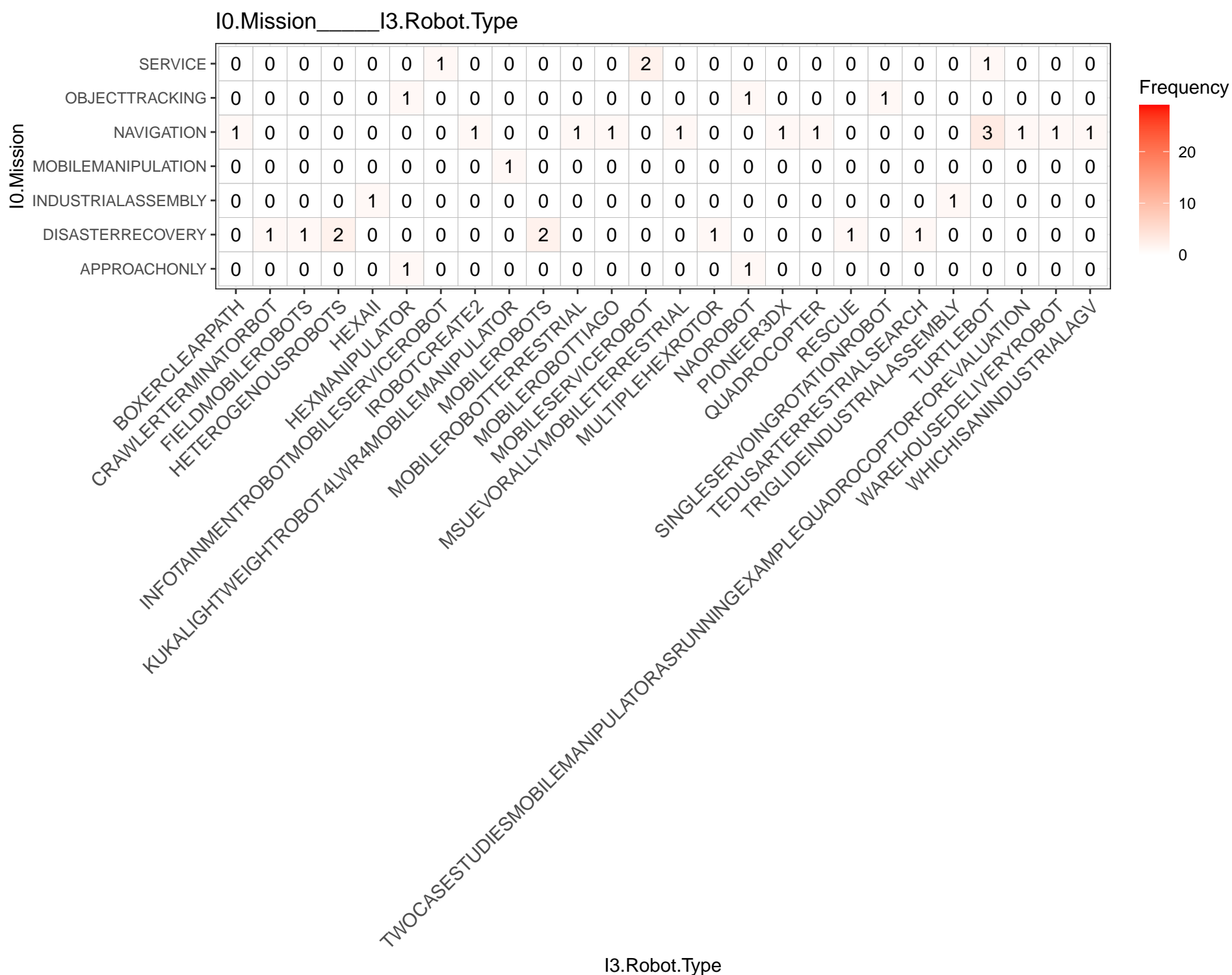






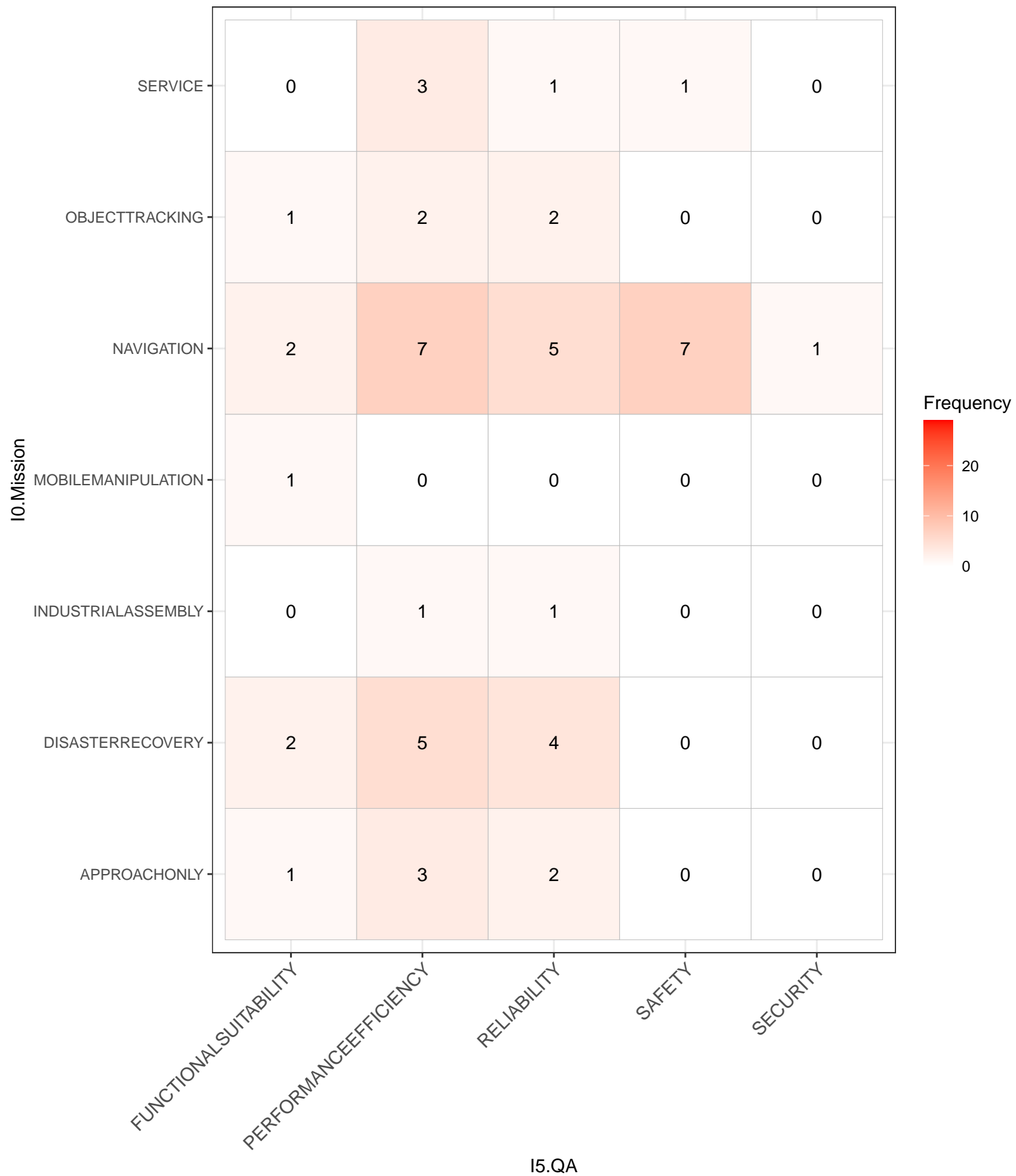


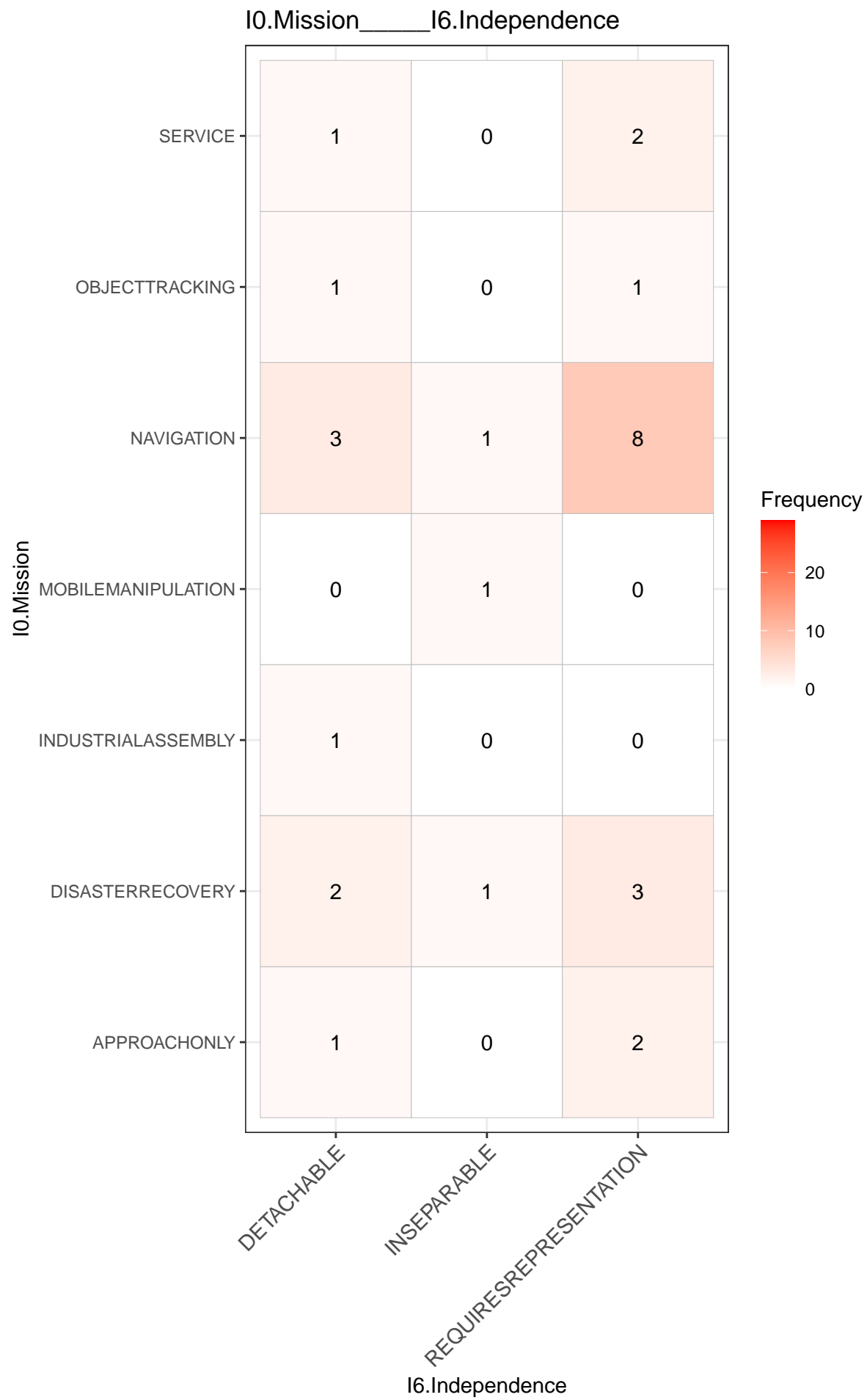




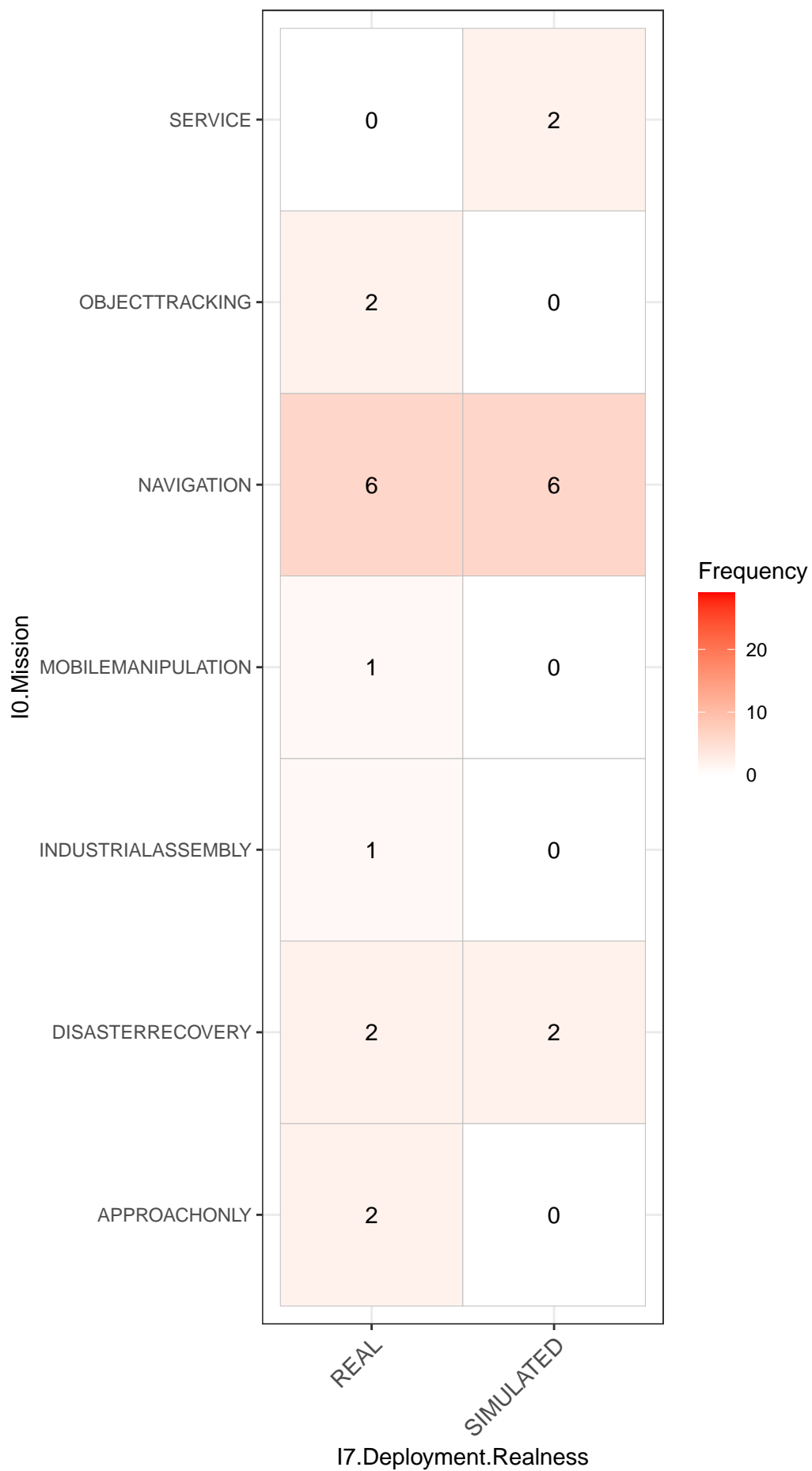


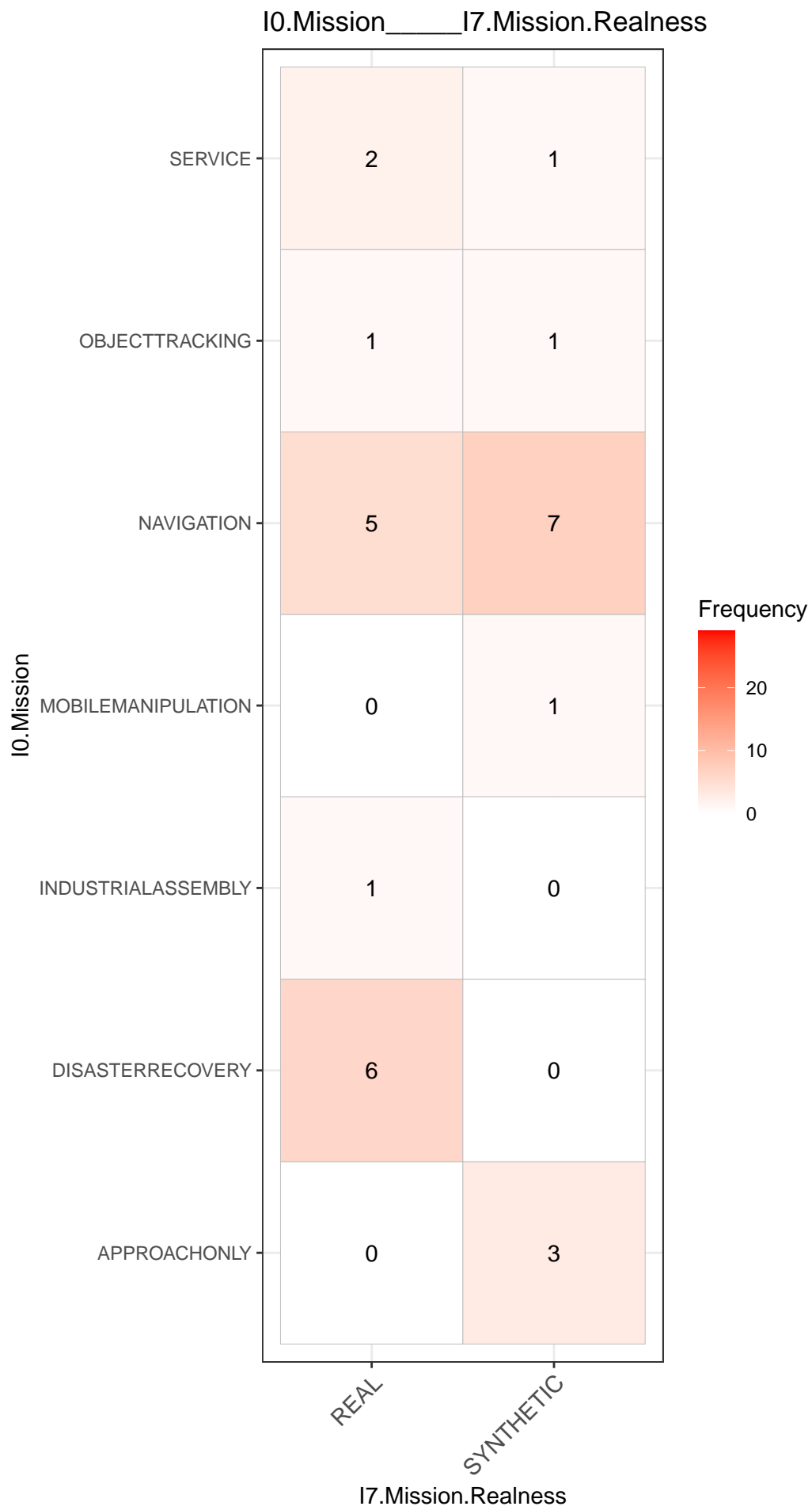
I0.Mission_____I5.QA



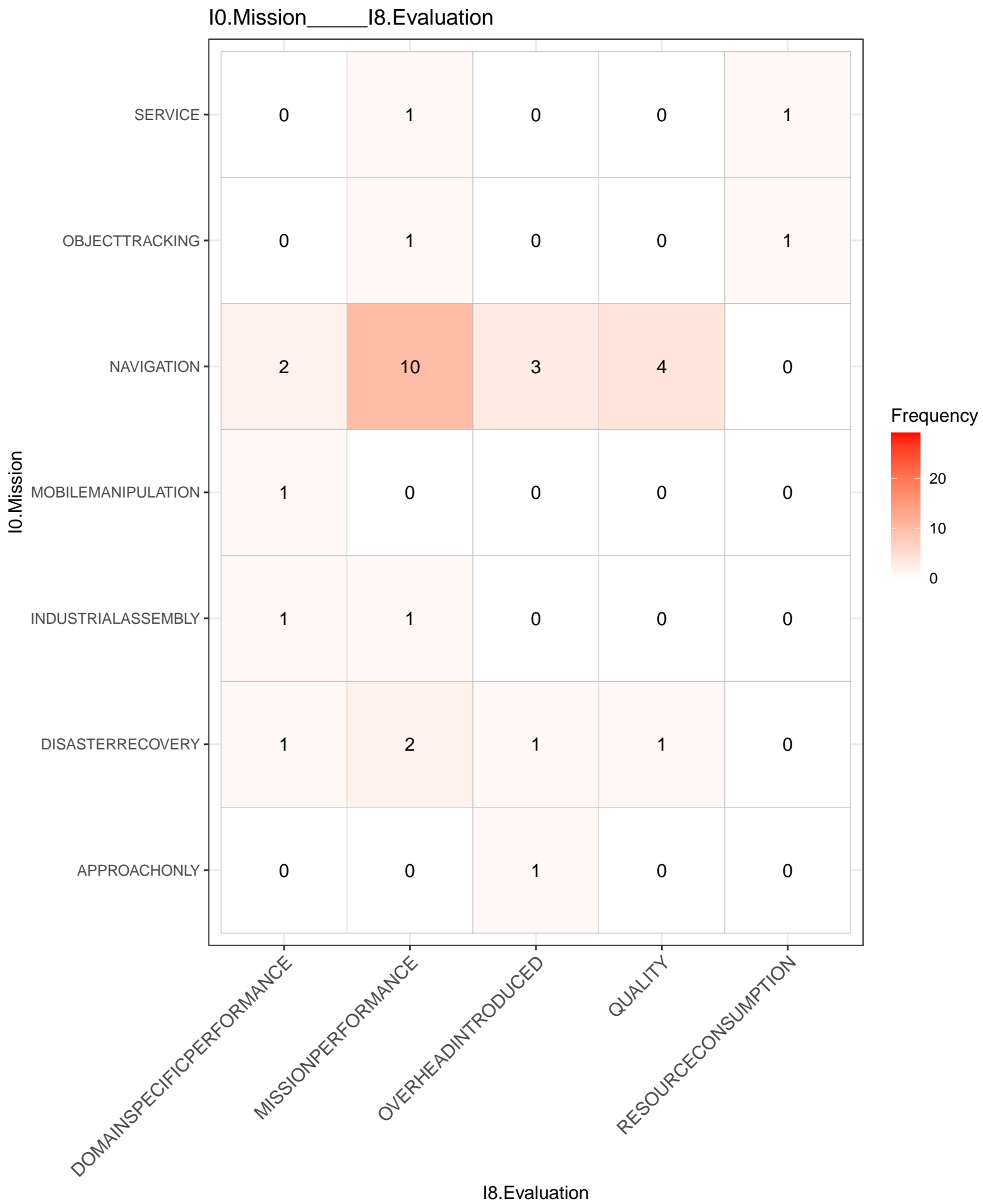


I0.Mission_____I7.Deployment.Realness



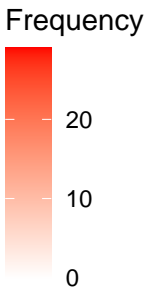
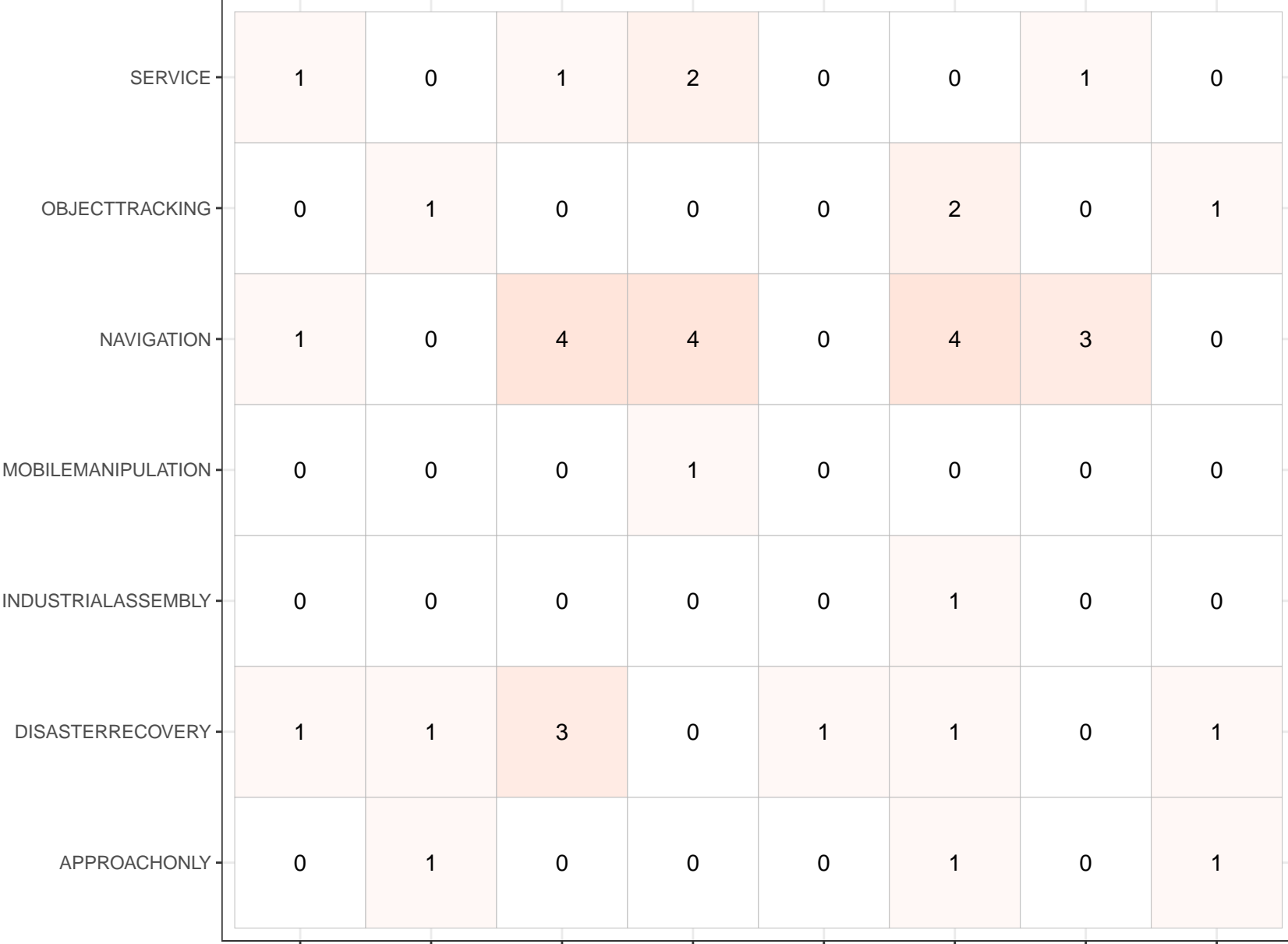






10.Mission_____19.Adap..Logic

10.Mission

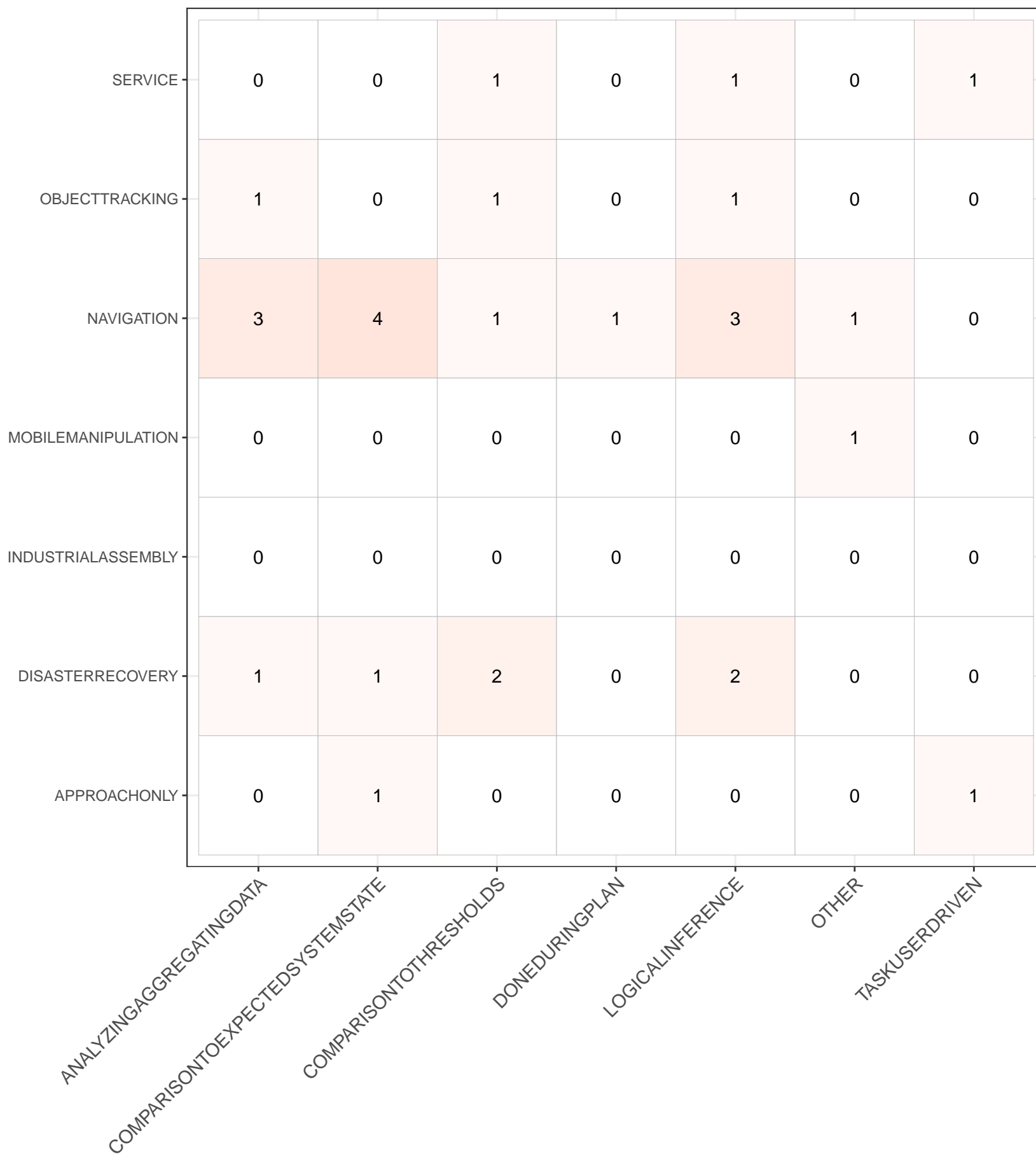


19.Adap..Logic



I0.Mission_____I11.Analyze

I0.Mission



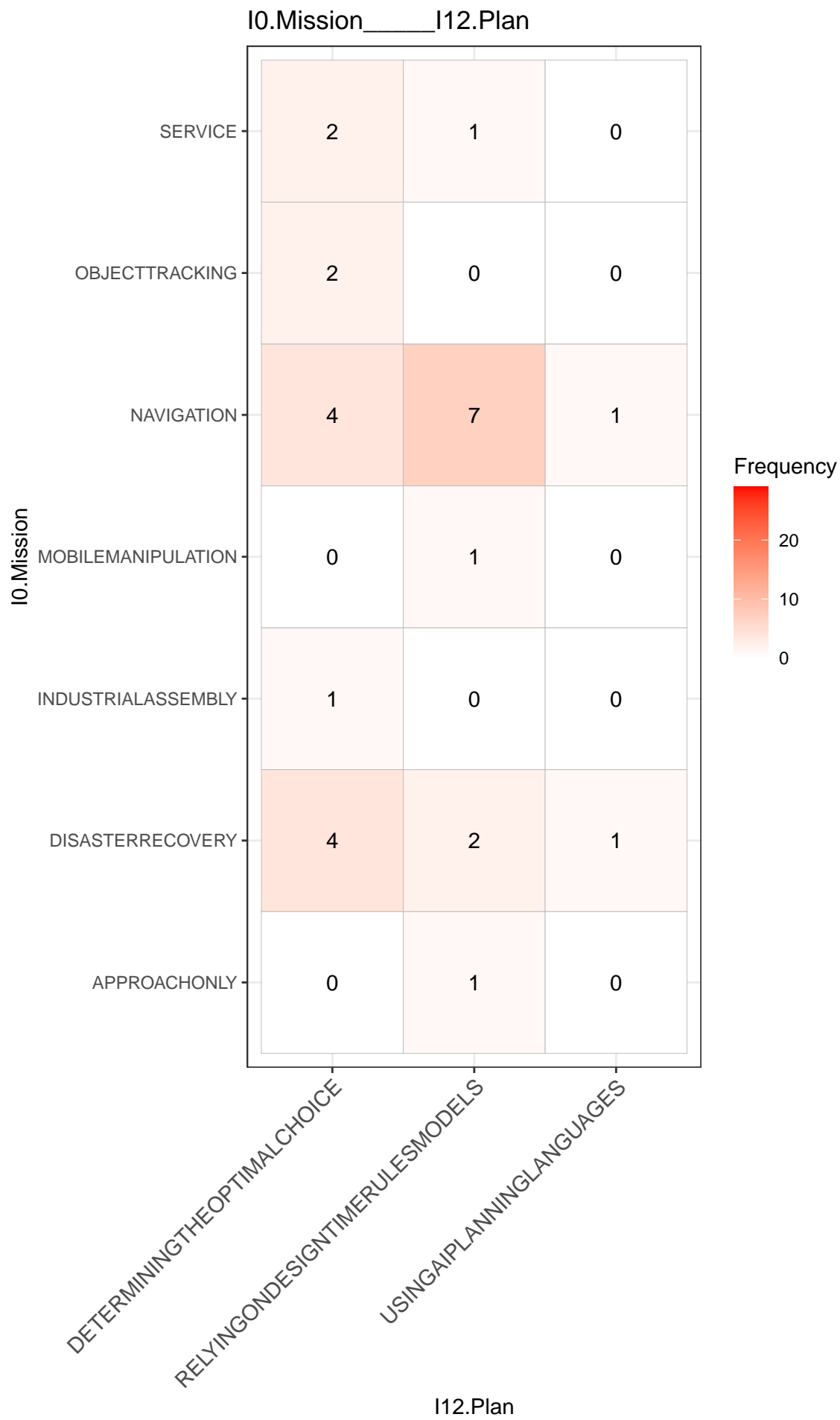
Frequency

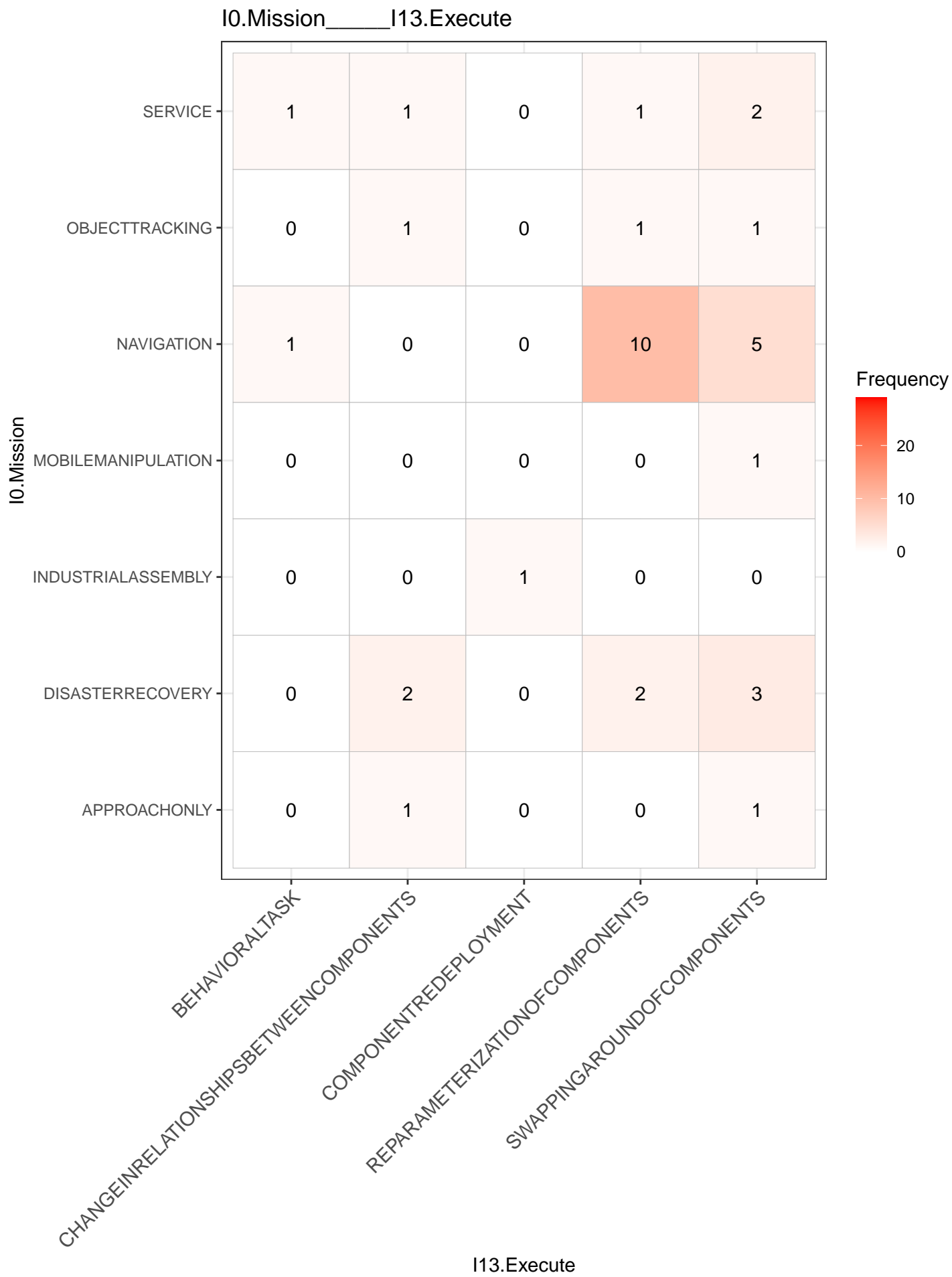
20

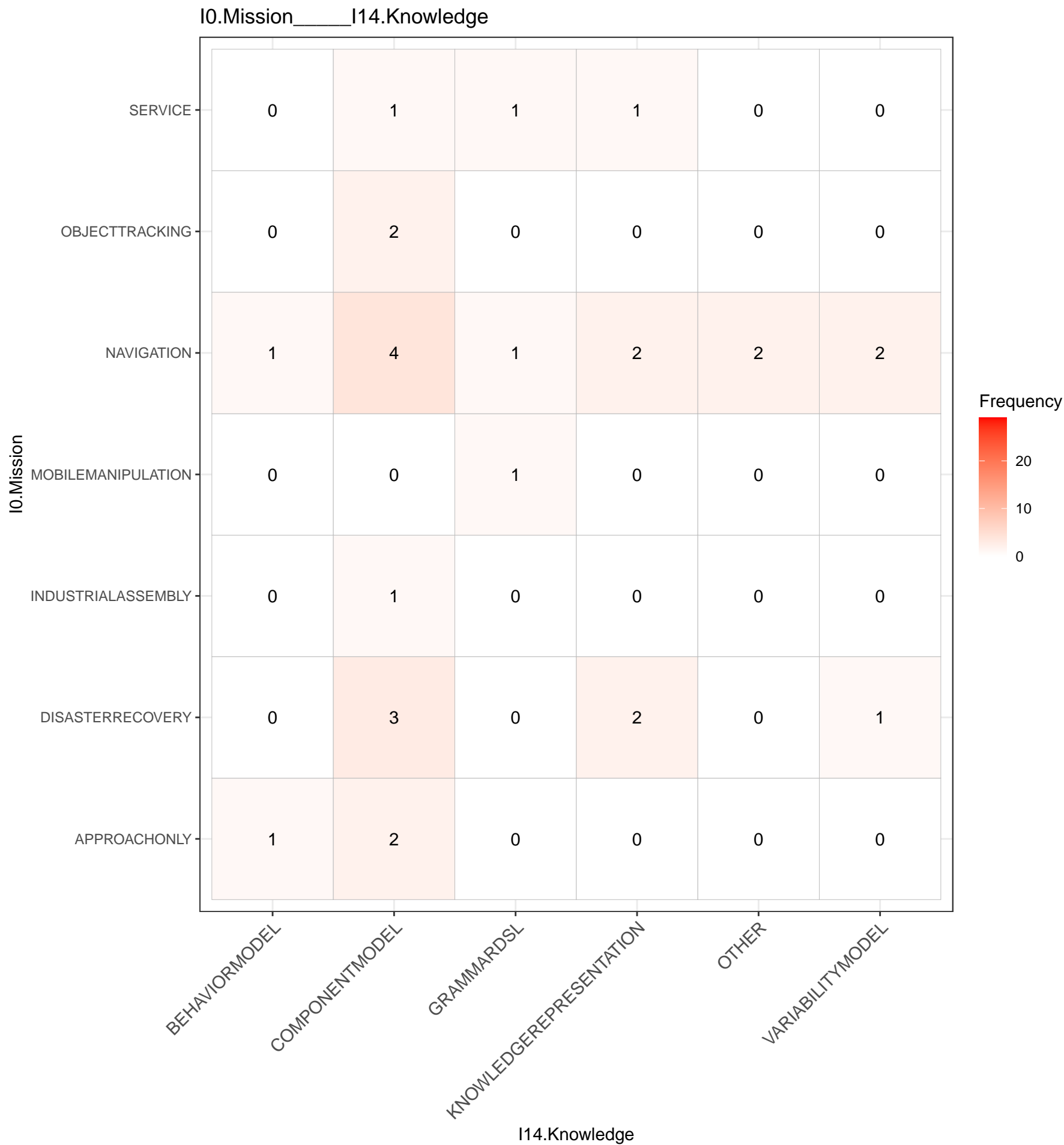
10

0

I11.Analyze







I1.1.Metadata_____I1.2.Source.of.Change

I1.1.Metadata

STATIC

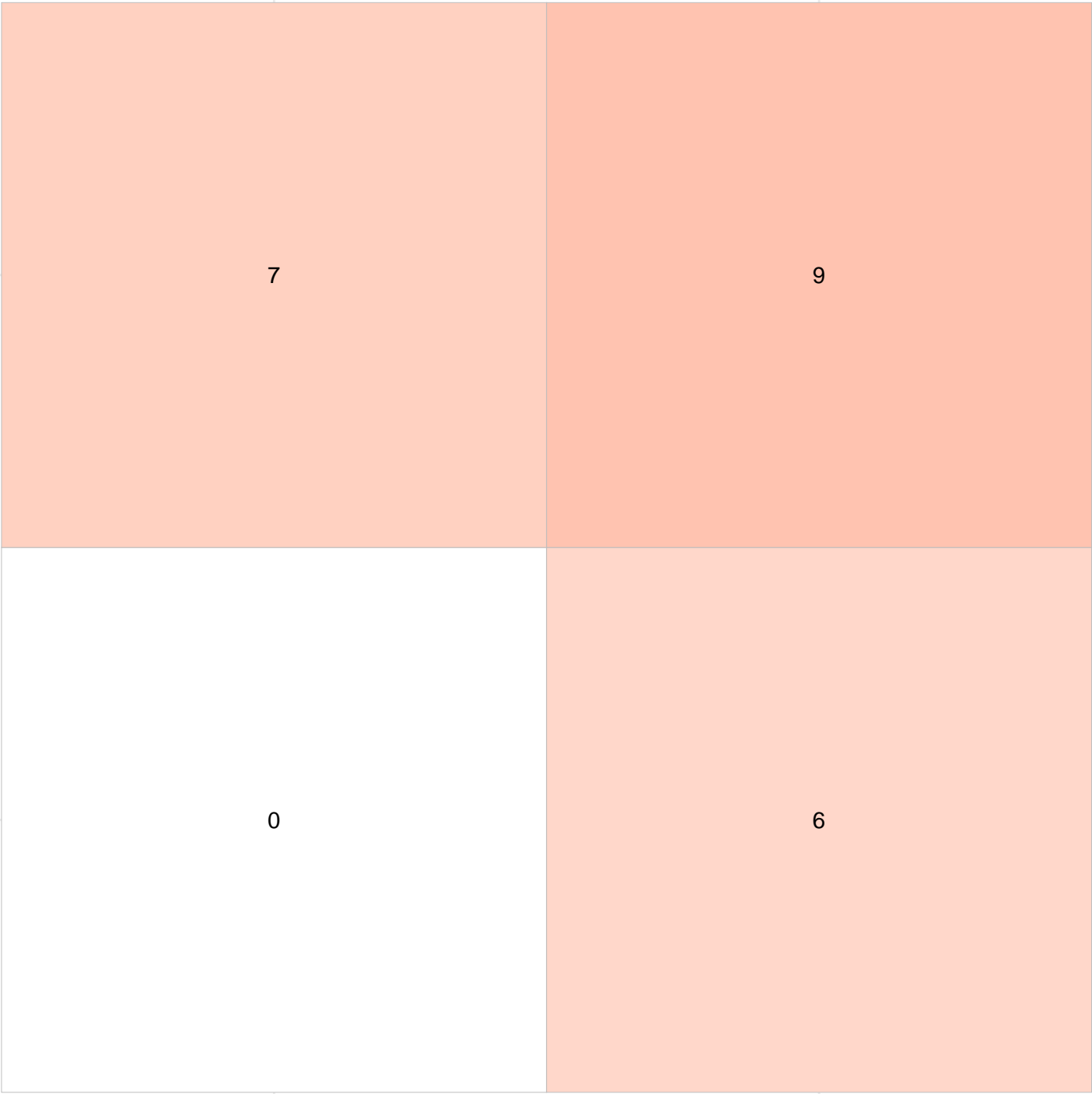
DYNAMIC

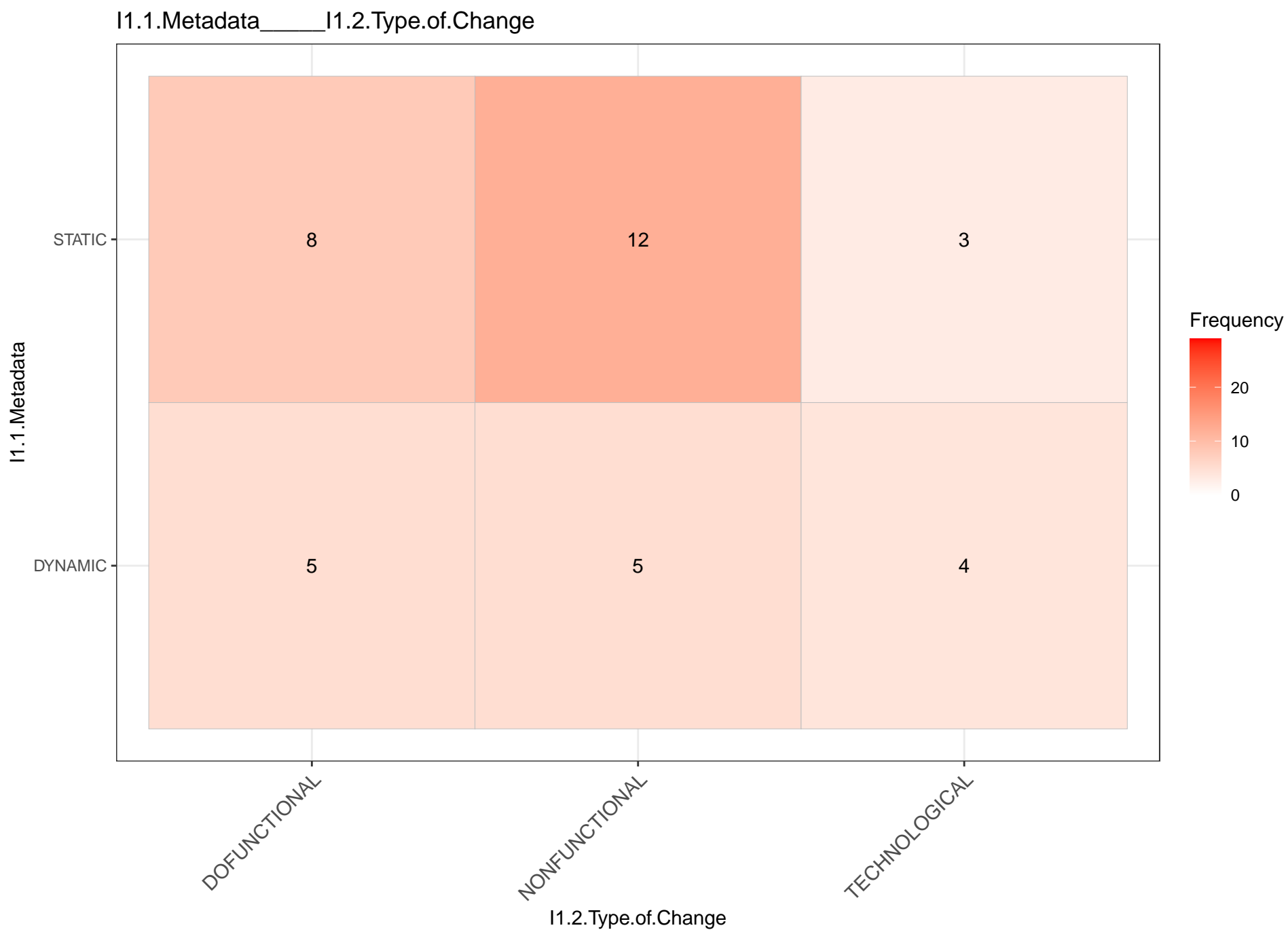
EXTERNAL

INTERNAL

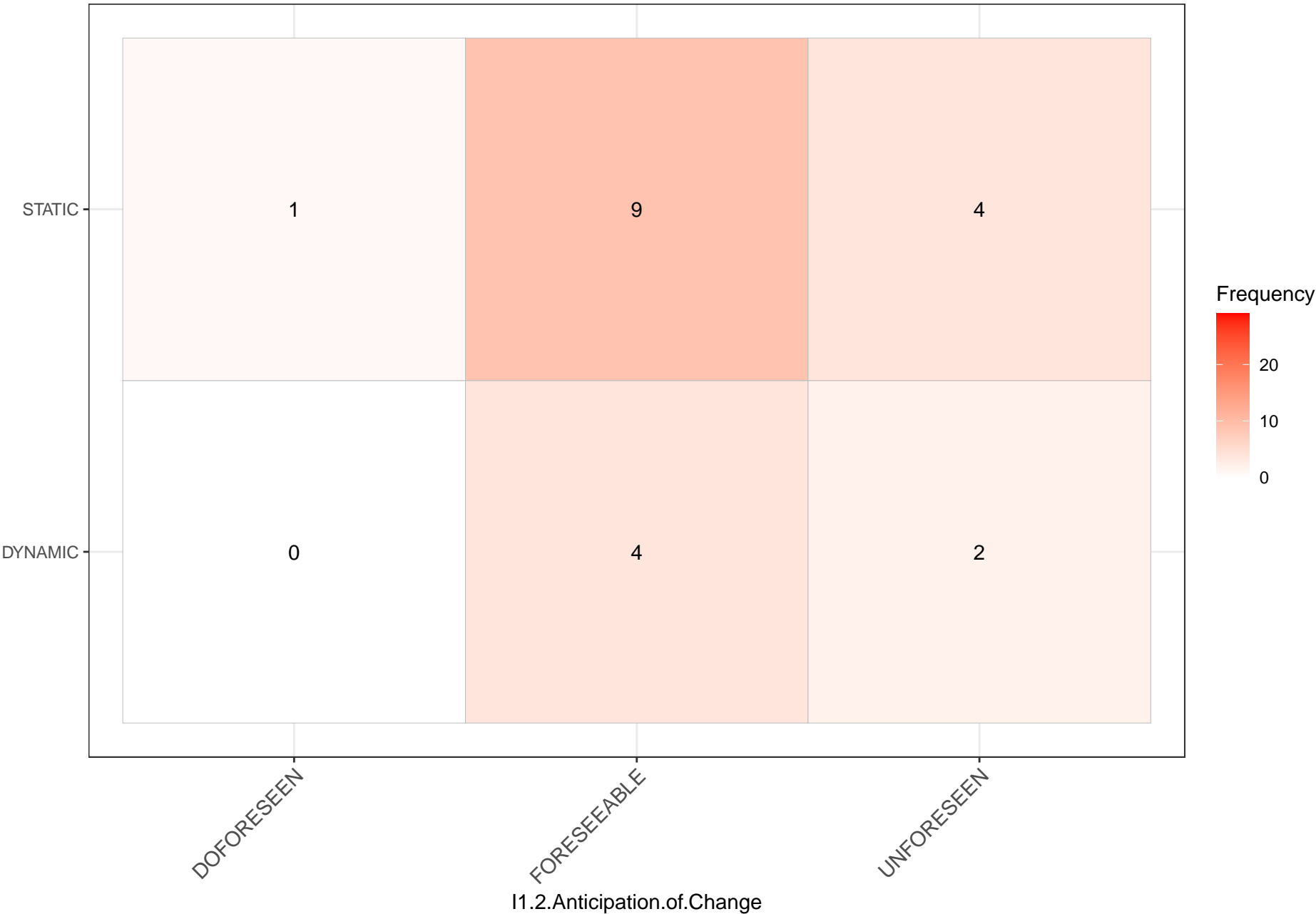
I1.2.Source.of.Change

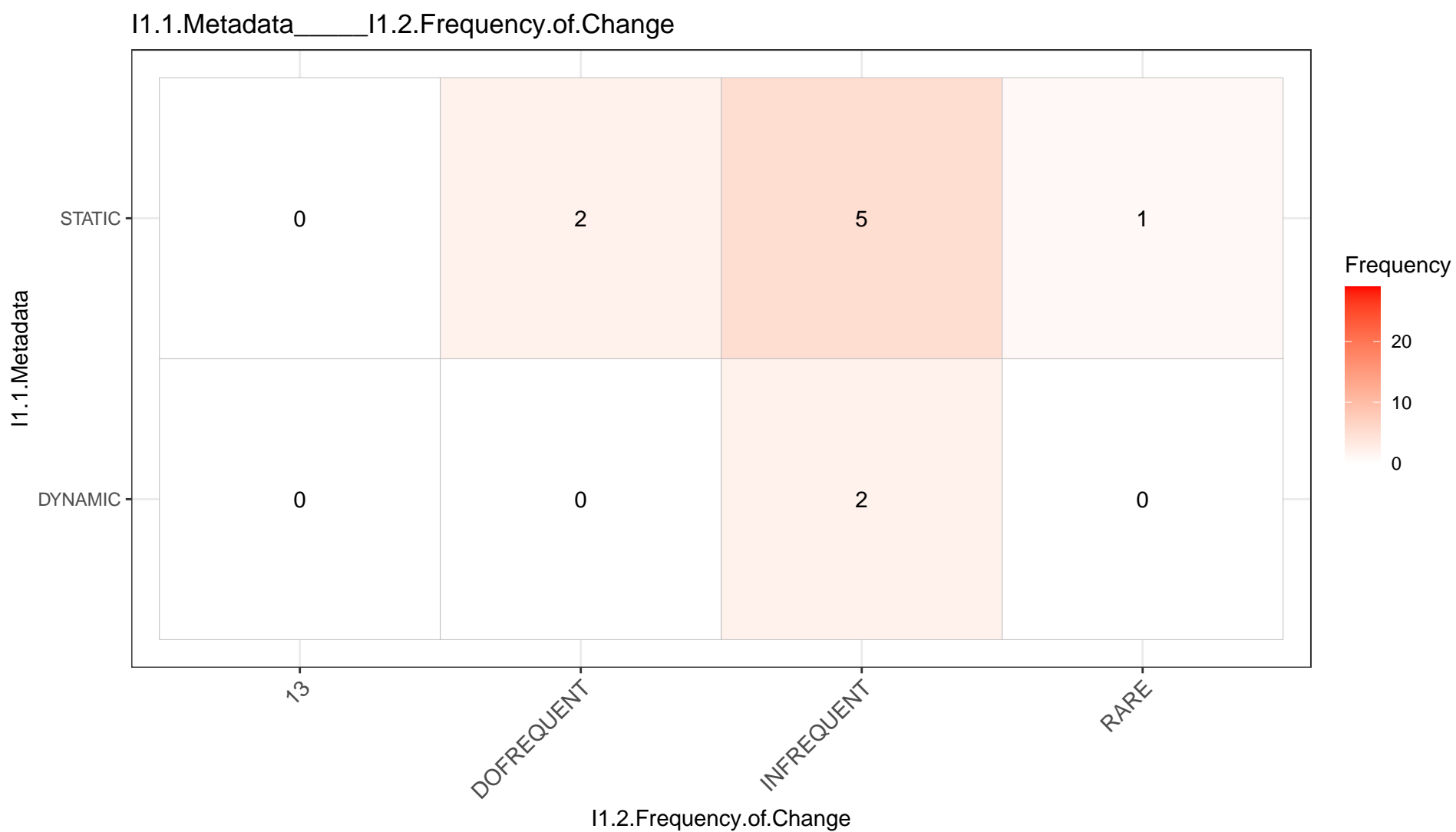
Frequency





I1.1.Metadata_____I1.2.Anticipation.of.Change





I1.1.Metadata_____I1.3.Type.of.Mechanism

I1.1.Metadata

STATIC

11

12

DYNAMIC

2

6

PARAMETRIC

STRUCTURAL

I1.3.Type.of.Mechanism

Frequency



20

10

0

STATIC

2

13

DYNAMIC

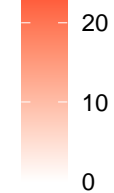
1

5

DECENTRALIZED

DOCENTRALIZED

Frequency



I1.1.Metadata_____I1.3.Scope.of.Mechanism

I1.1.Metadata

STATIC

2

13

DYNAMIC

1

6

GLOBAL

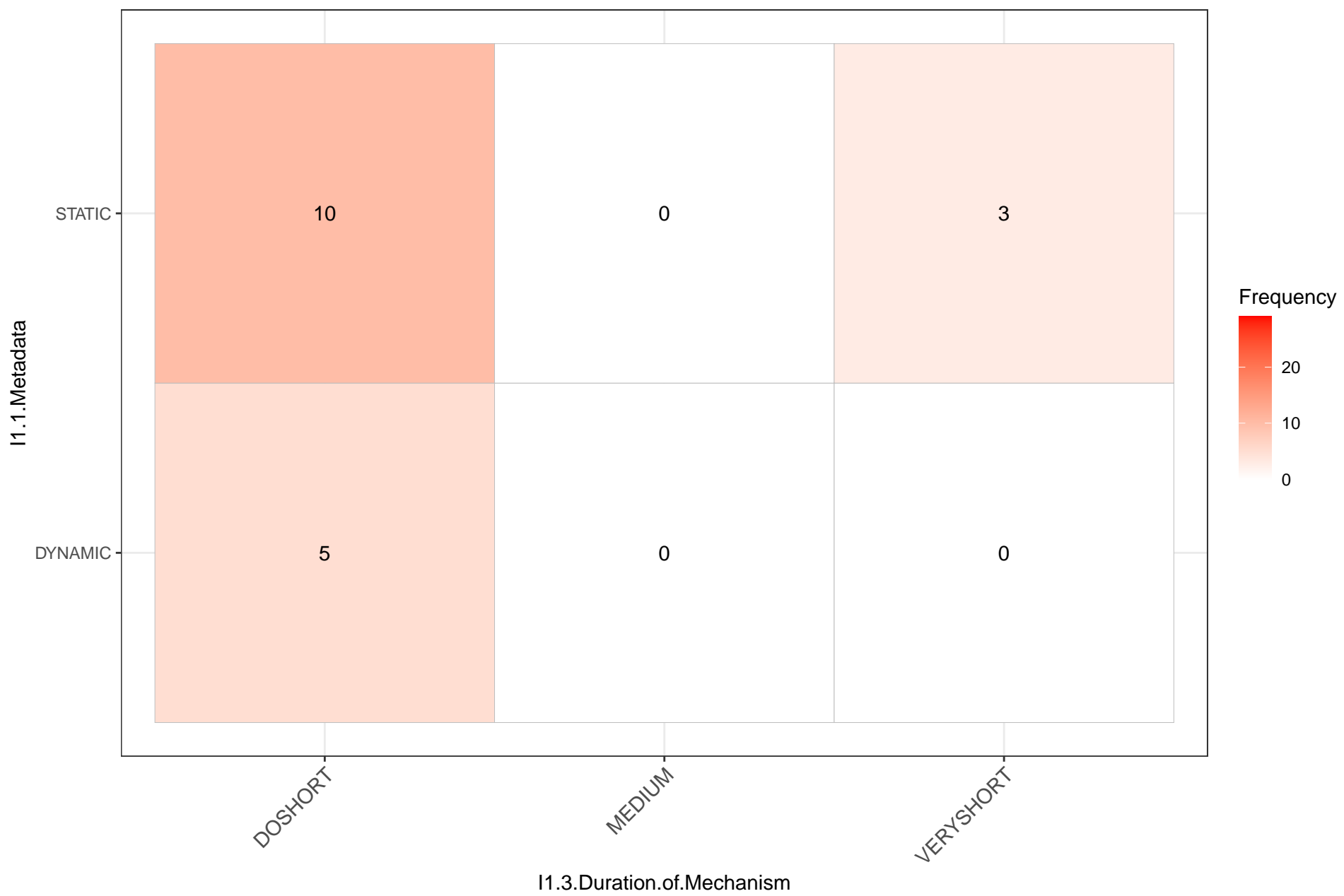
LOCAL

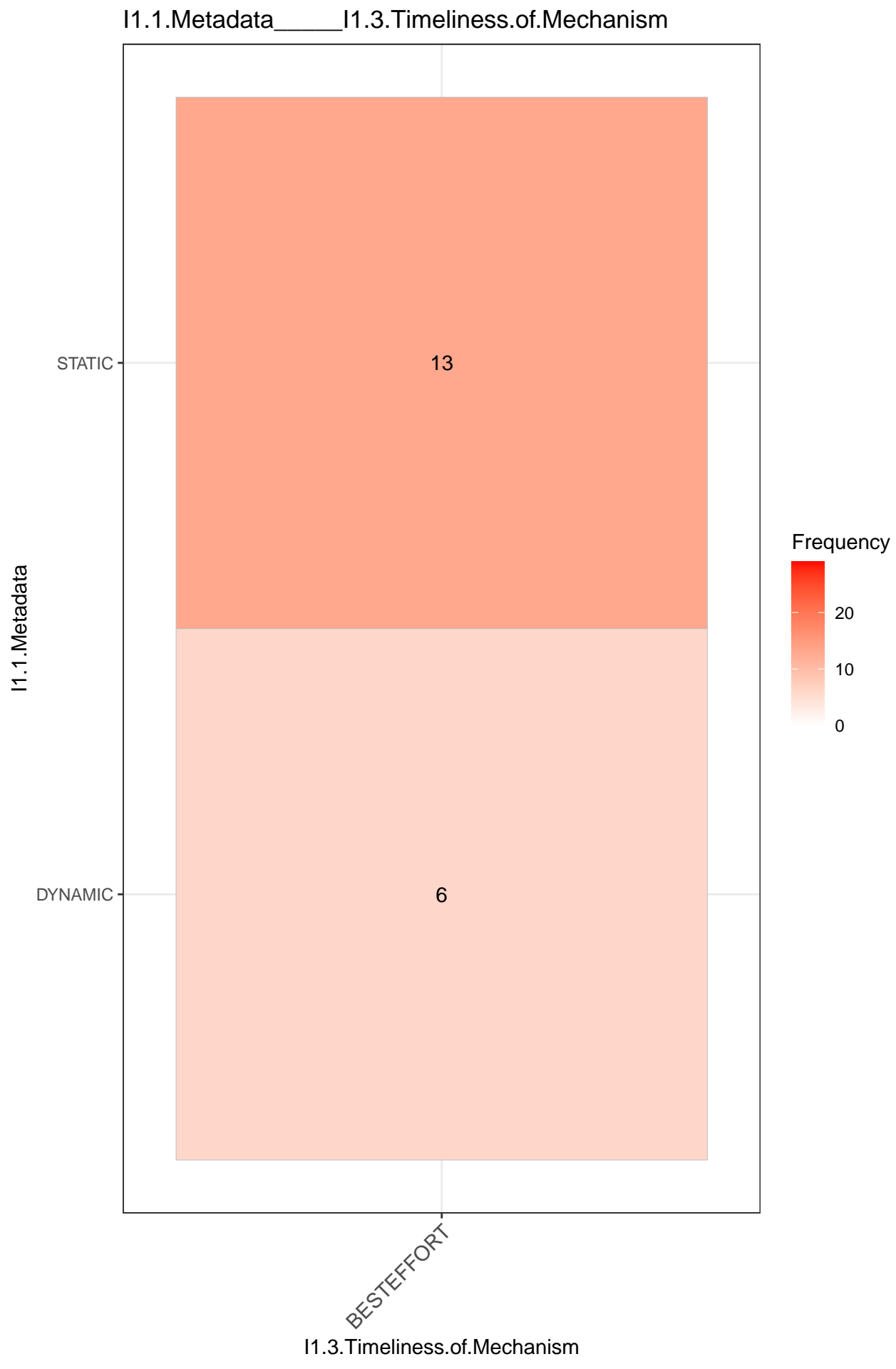
I1.3.Scope.of.Mechanism

Frequency



I1.1.Metadata_____I1.3.Duration.of.Mechanism





I1.1.Metadata

STATIC

12

2

DYNAMIC

6

0

EVENTTRIGGER

TIMETRIGGER

I1.3.Trigger.of.Mechanism

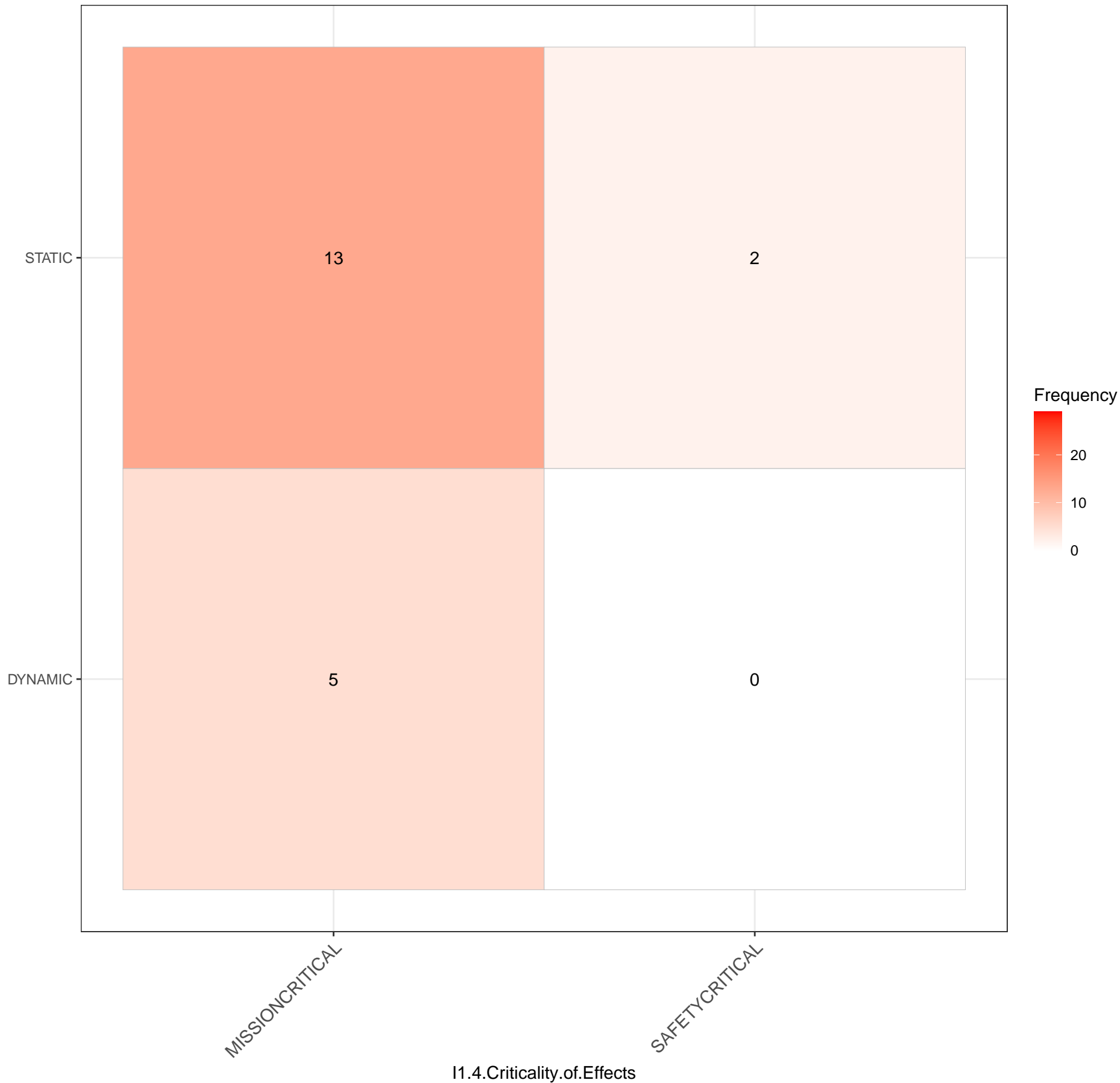
Frequency



20

10

0



STATIC

6

11

DYNAMIC

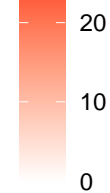
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4

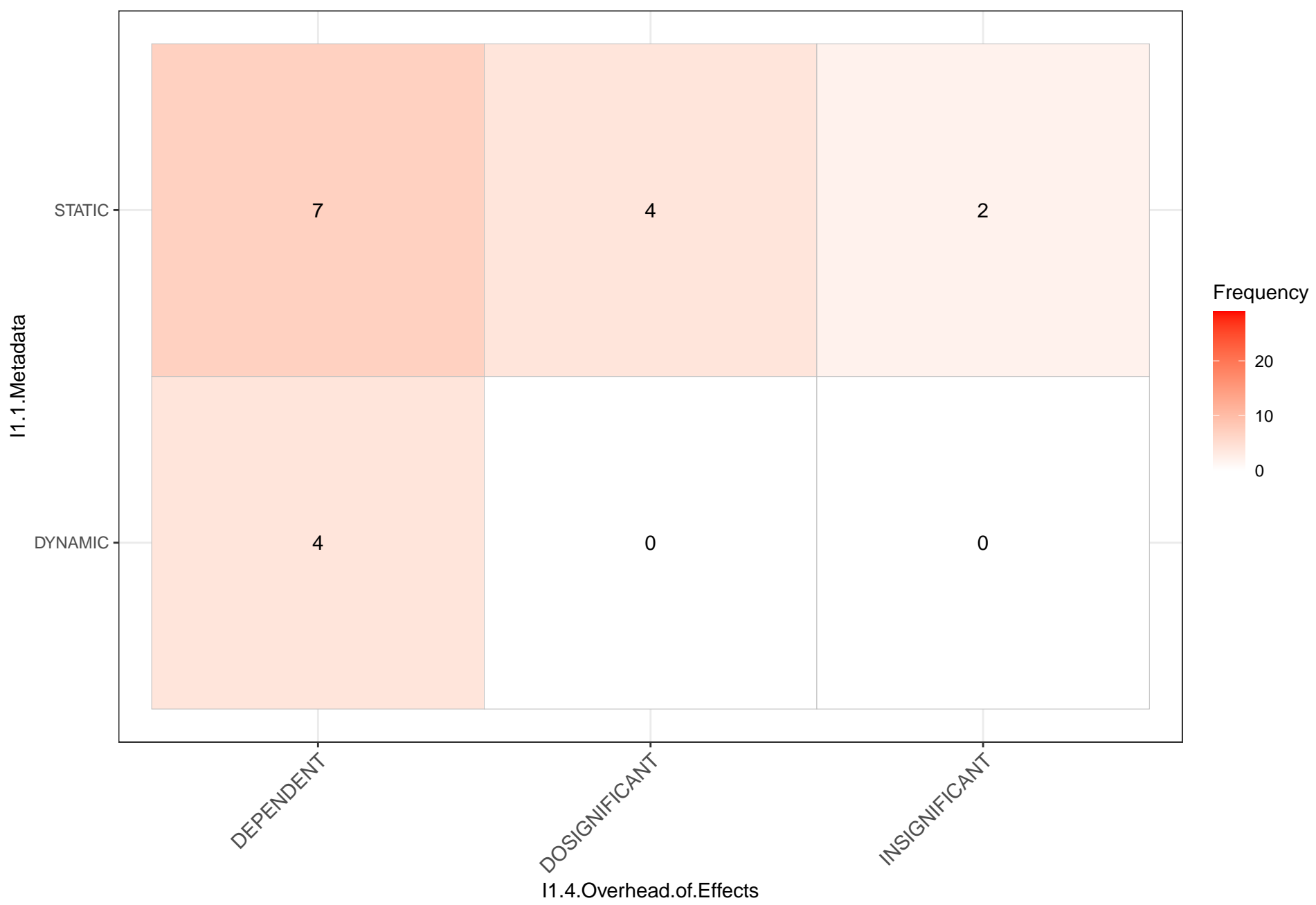
DODETERMINISTIC

NONDETERMINISTIC

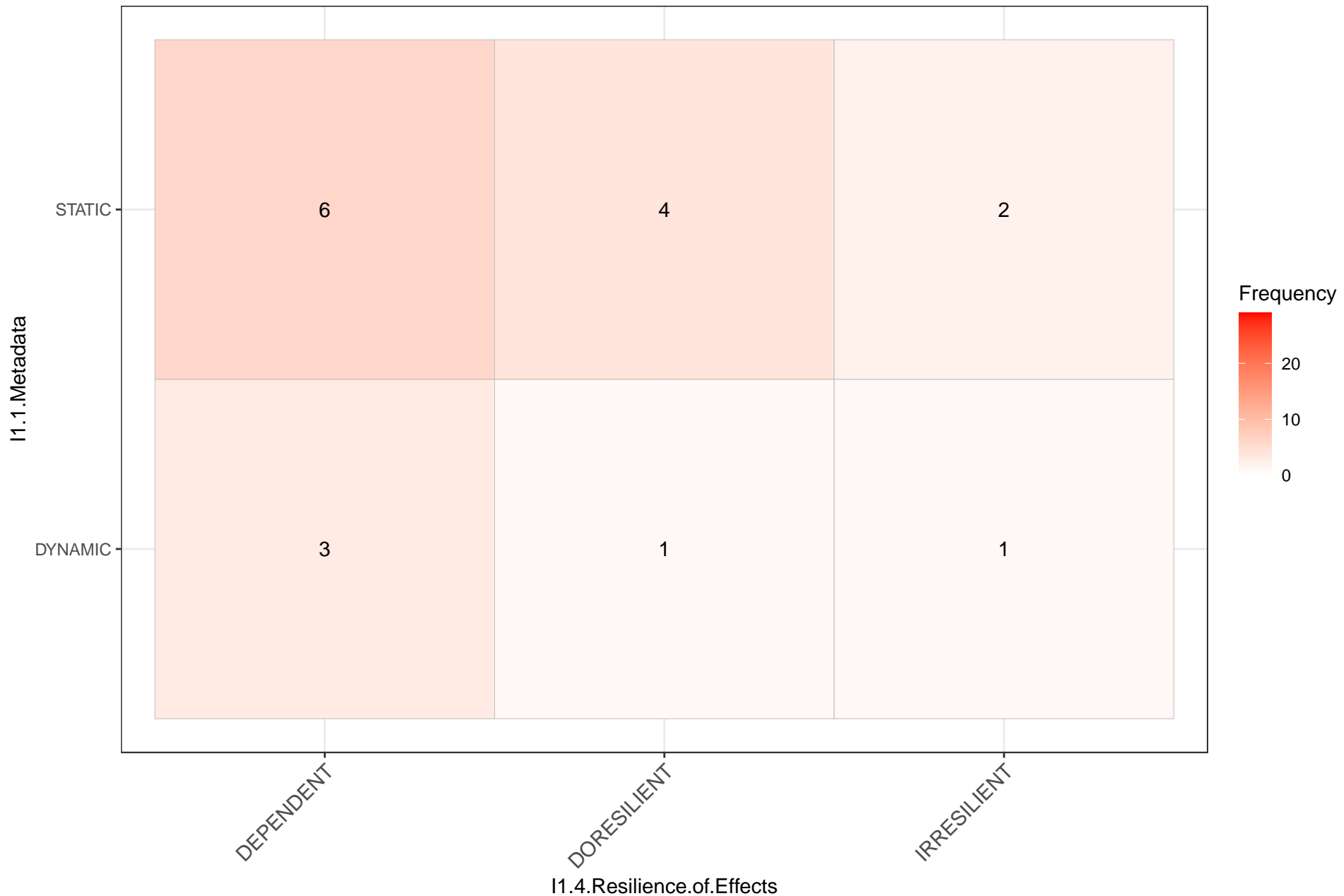
Frequency

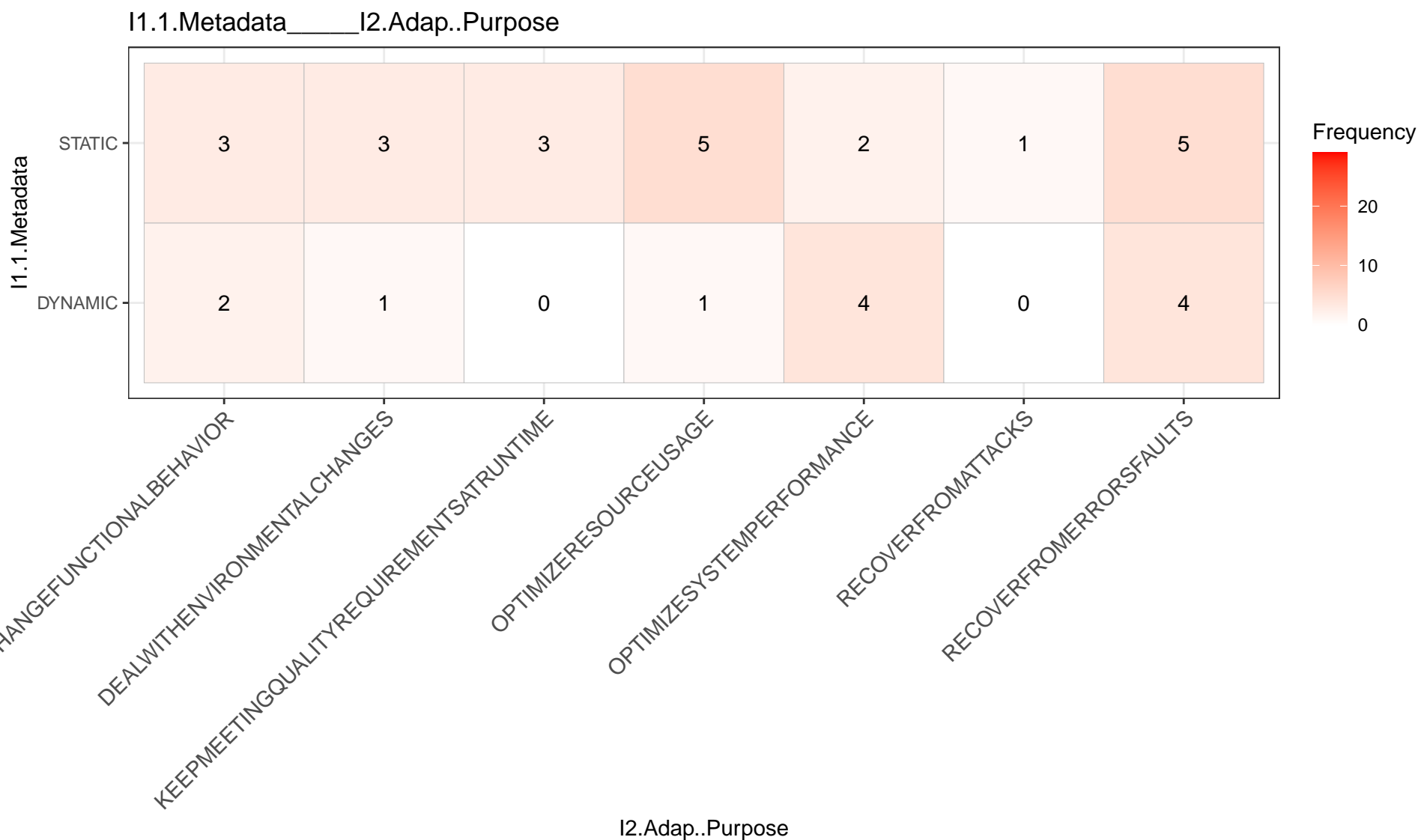


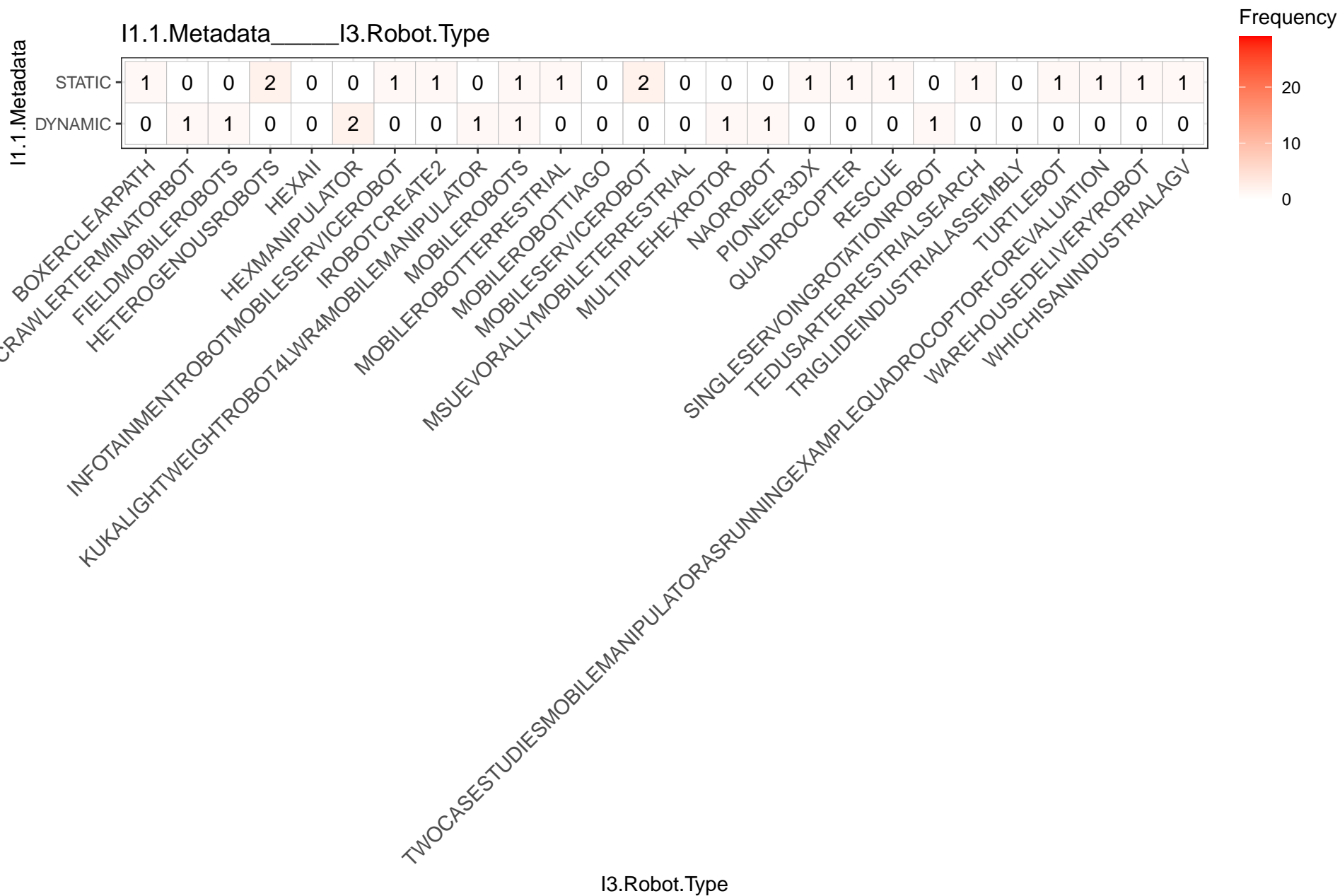
I1.1.Metadata_____I1.4.Overhead.of.Effects



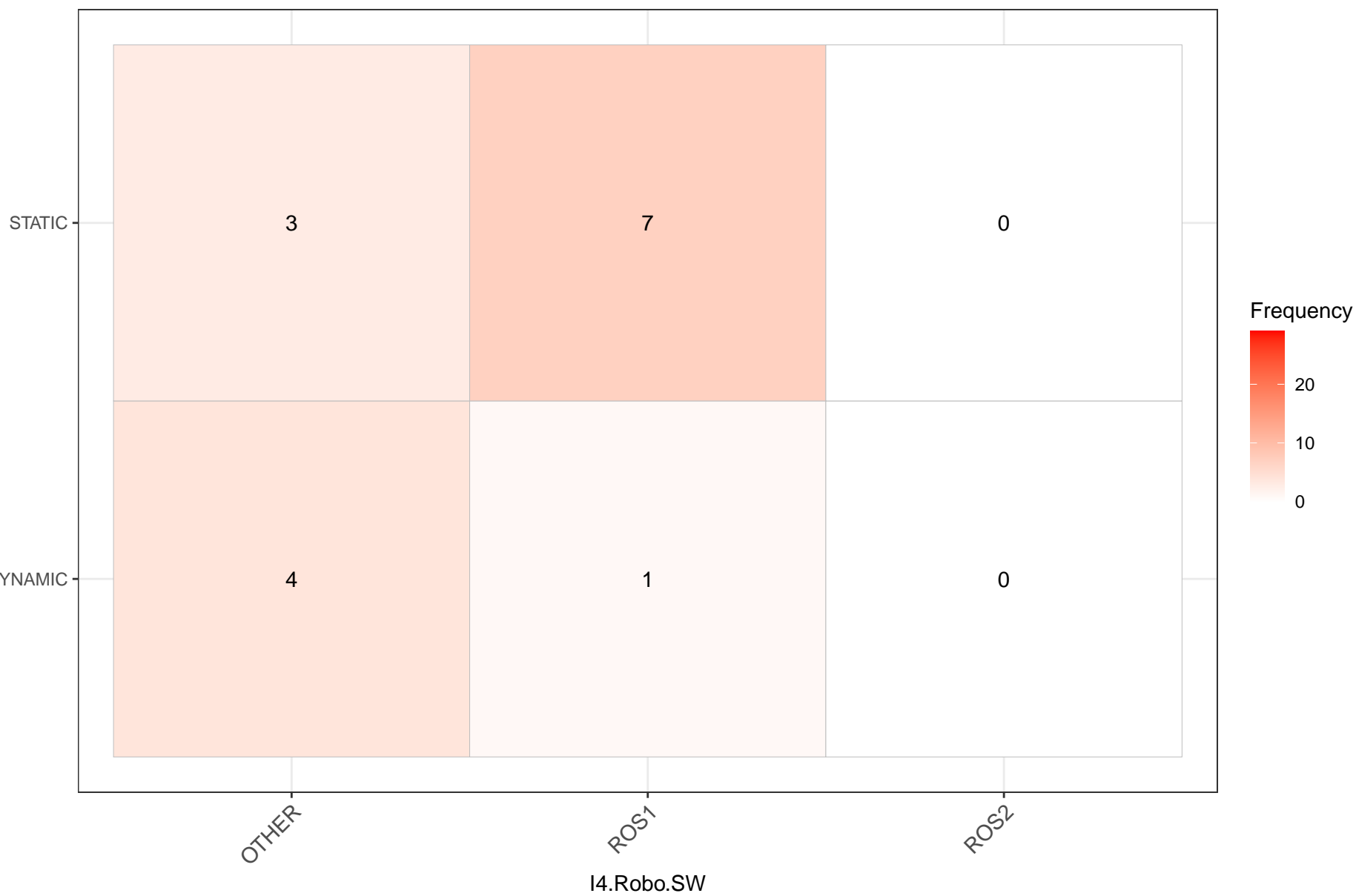
I1.1.Metadata_____I1.4.Resilience.of.Effects

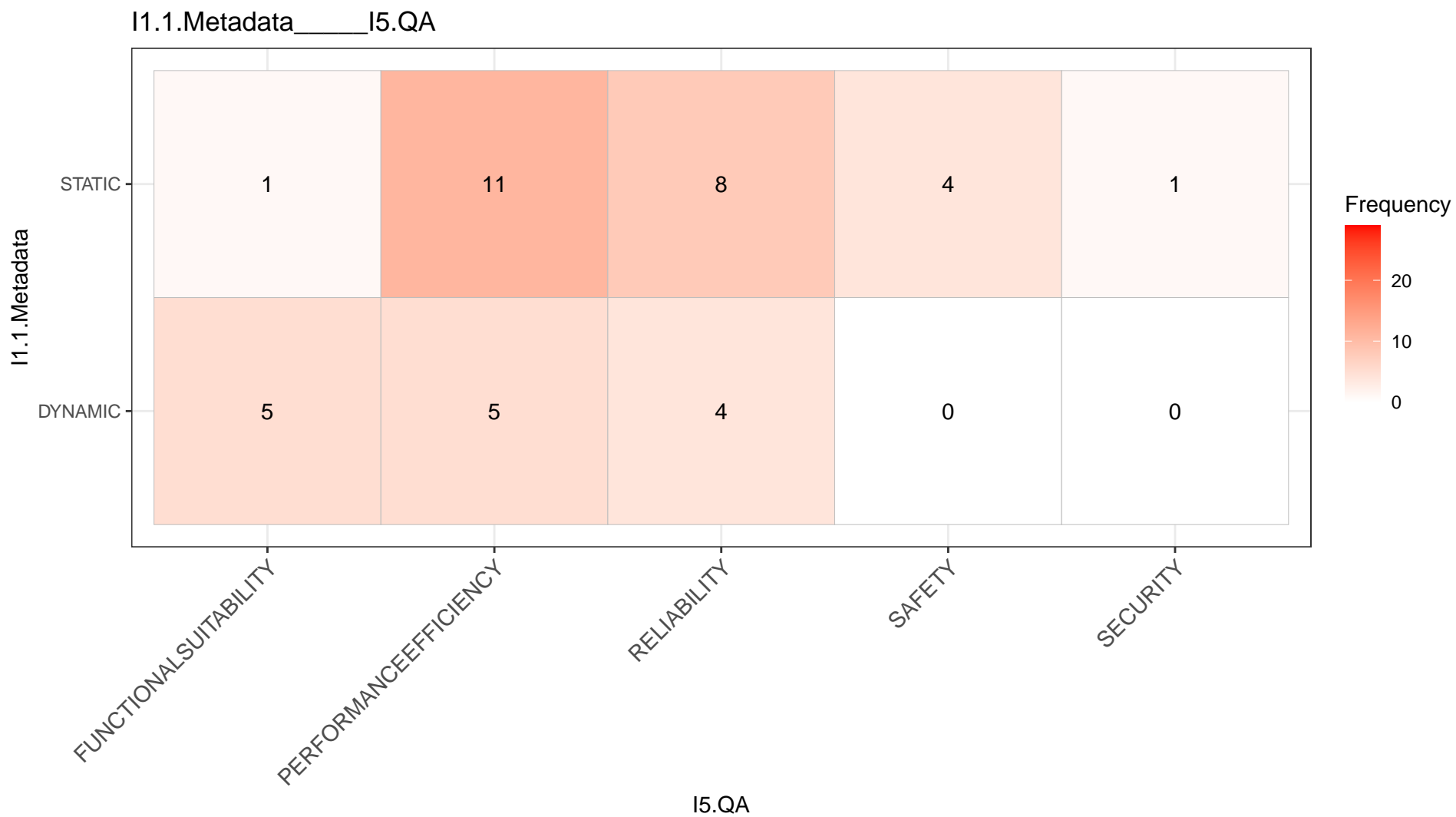




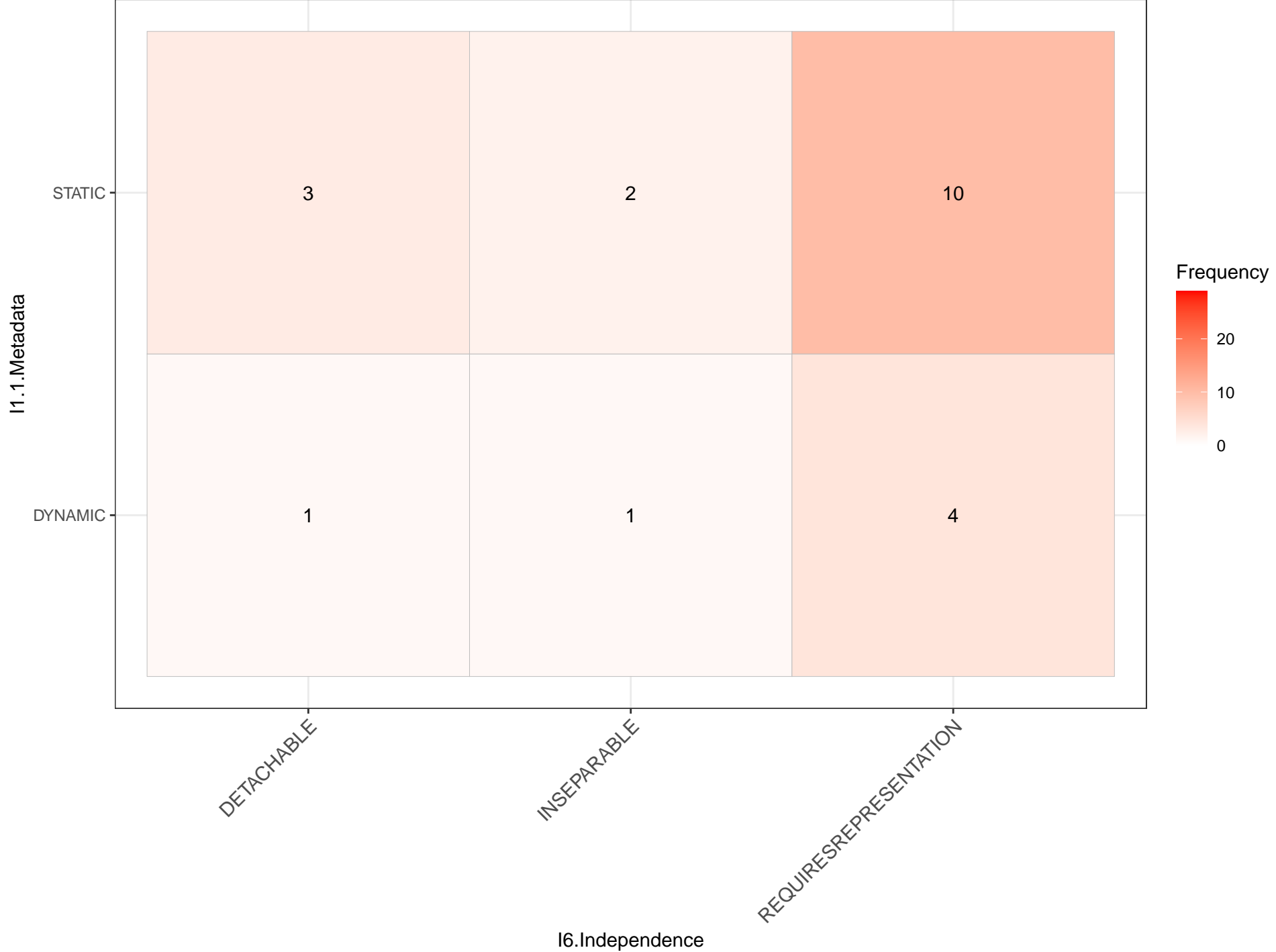


I1.1.Metadata I4.Robo.SW

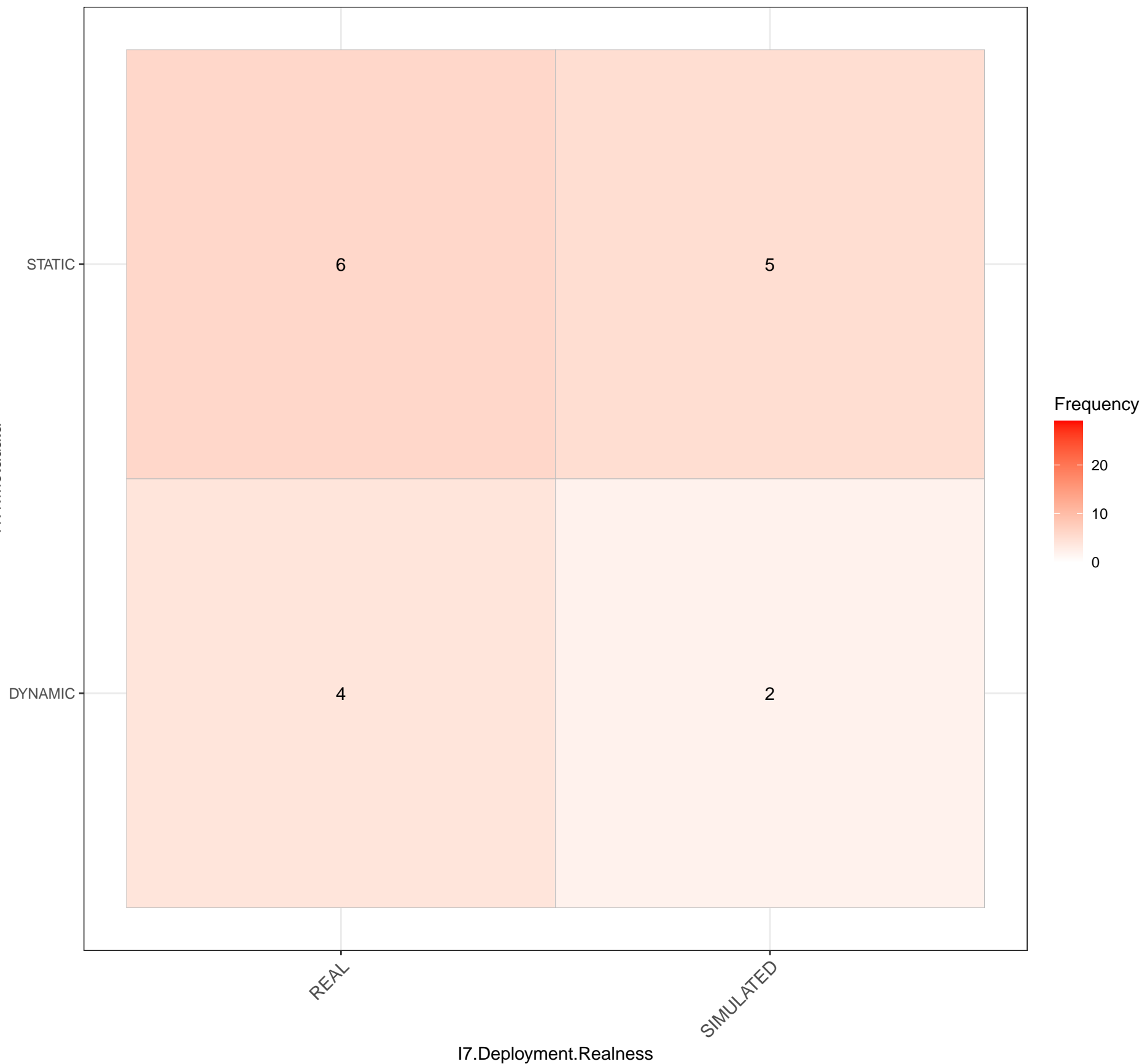




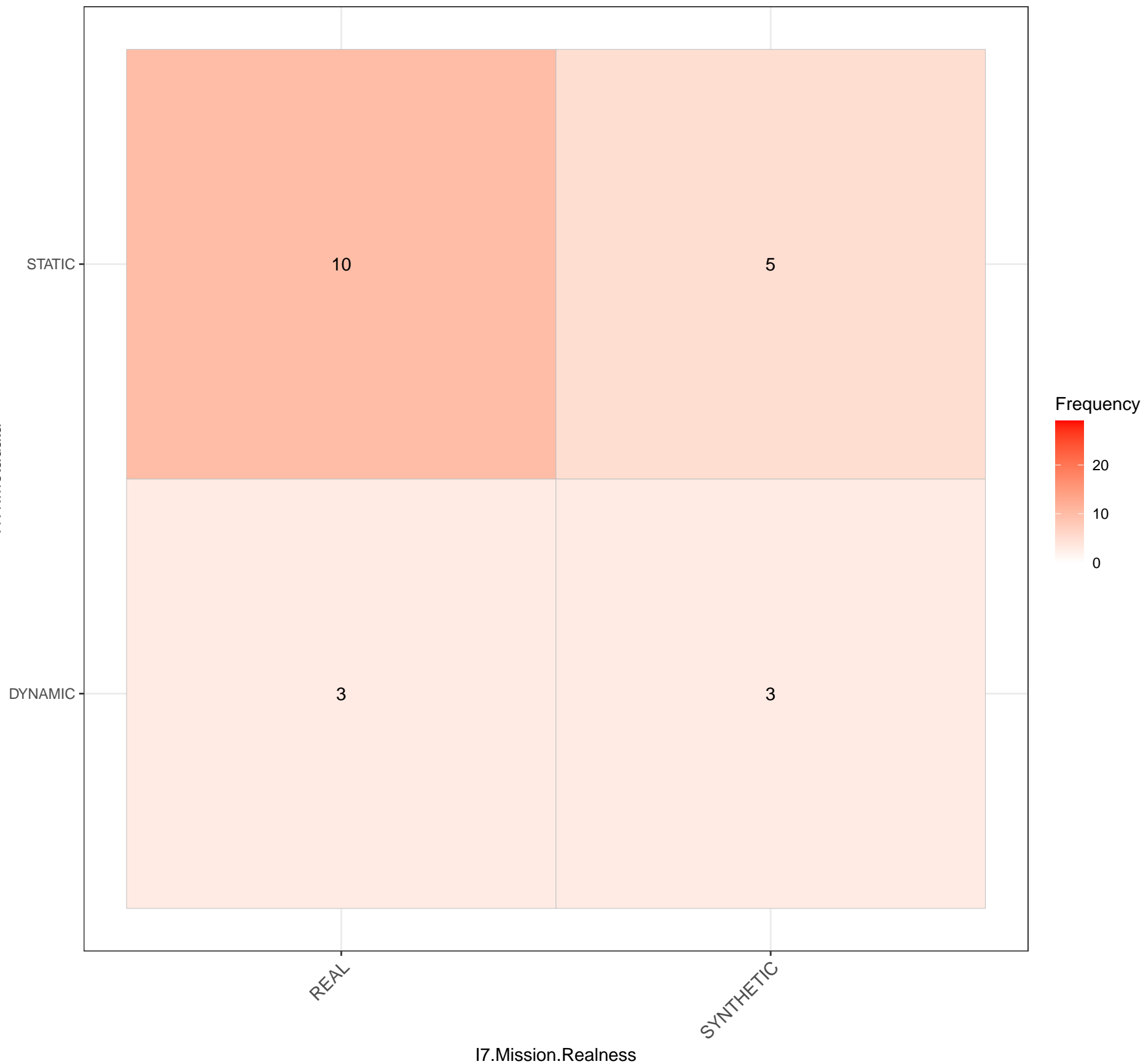
I1.1.Metadata_____I6.Independence



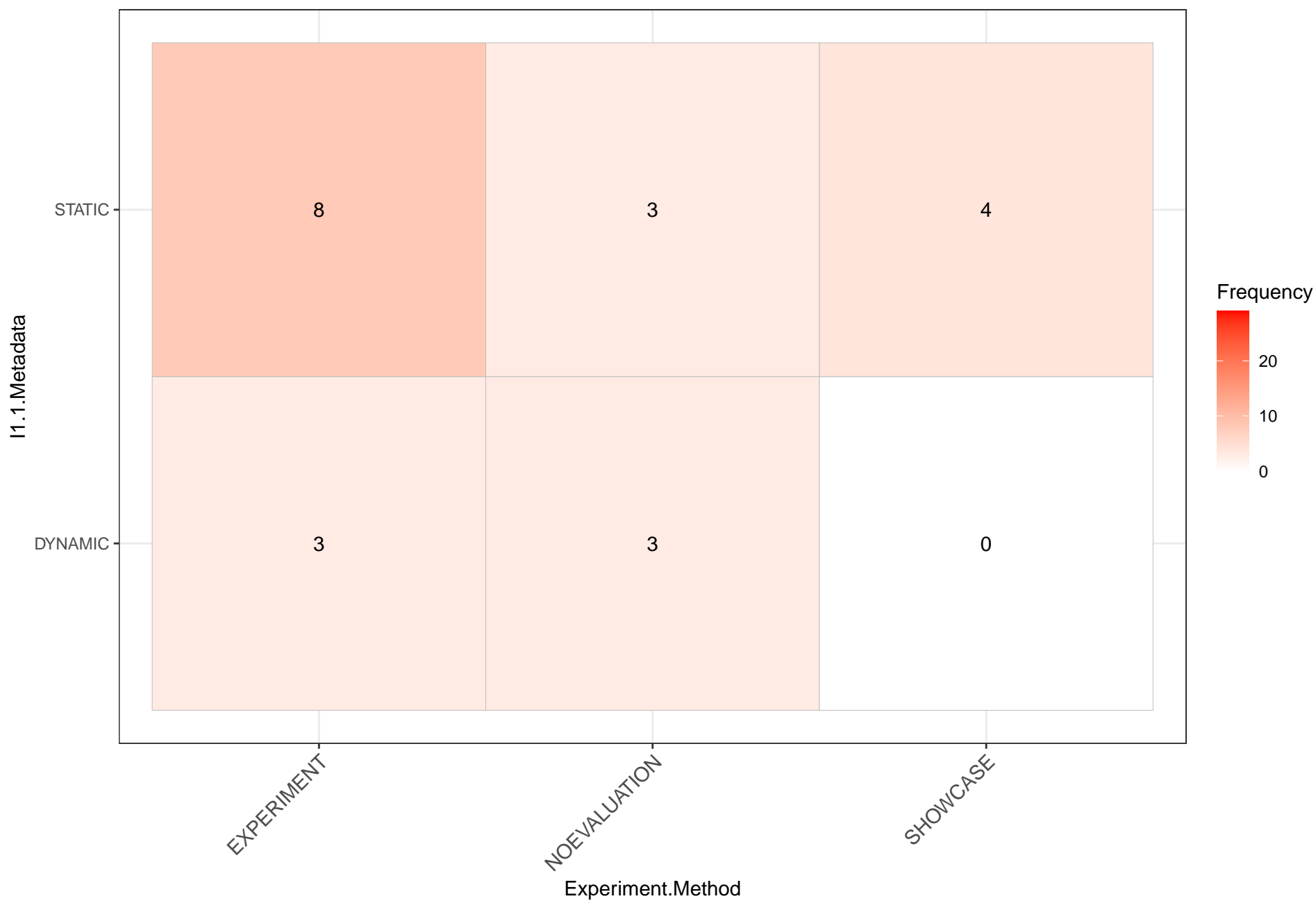
I1.1.Metadata_____I7.Deployment.Realness

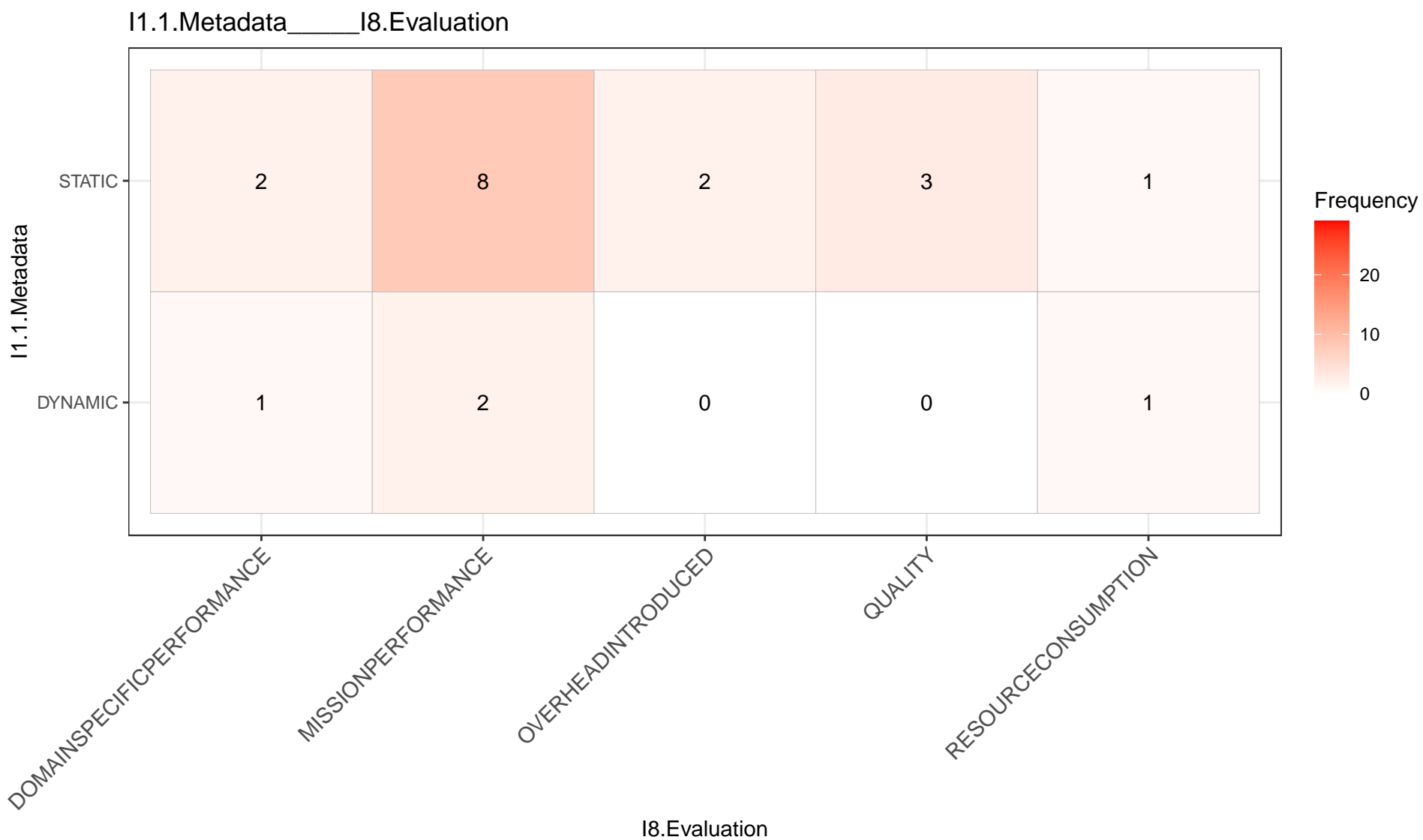


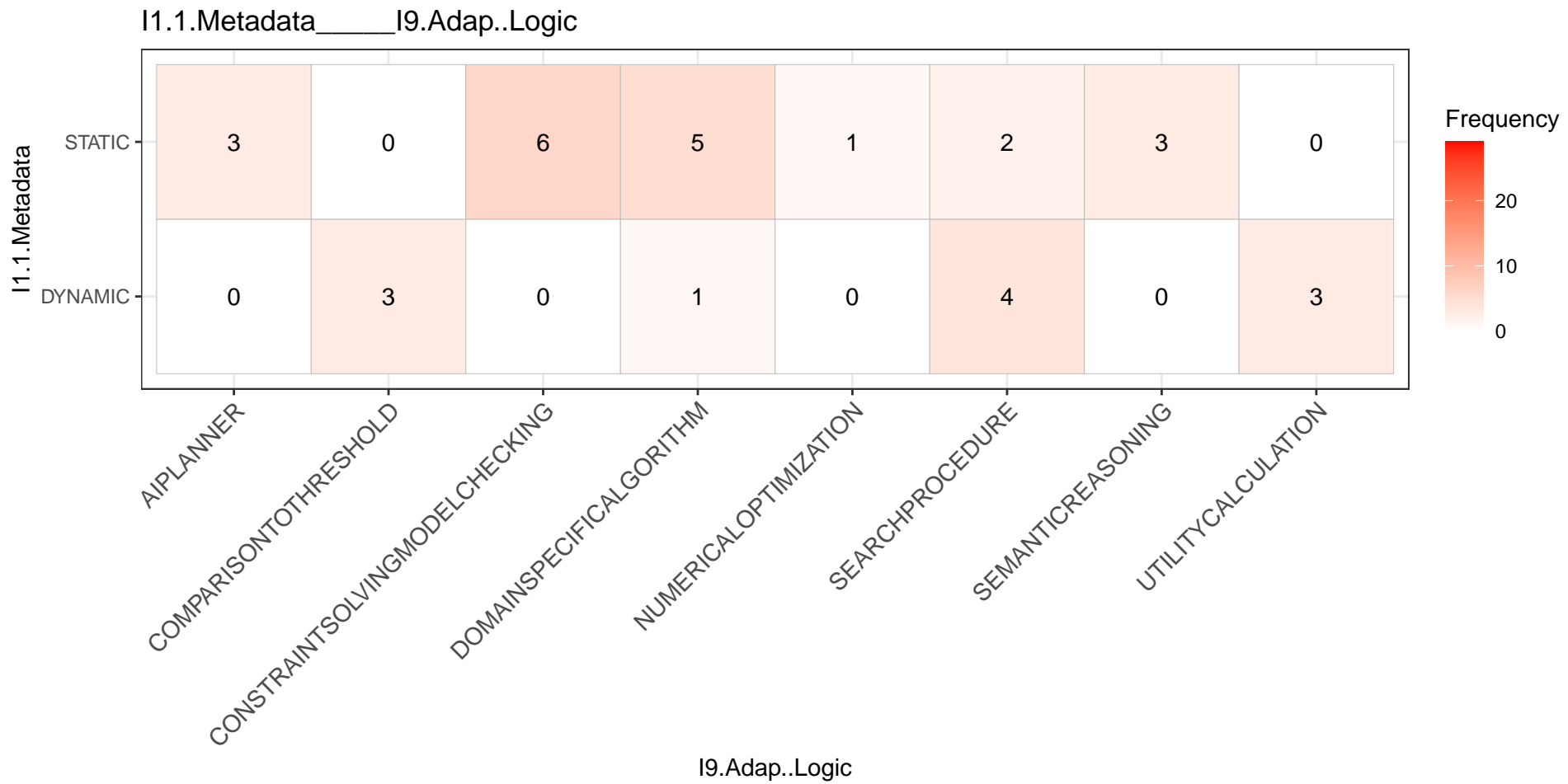
I1.1.Metadata_____I7.Mission.Realness



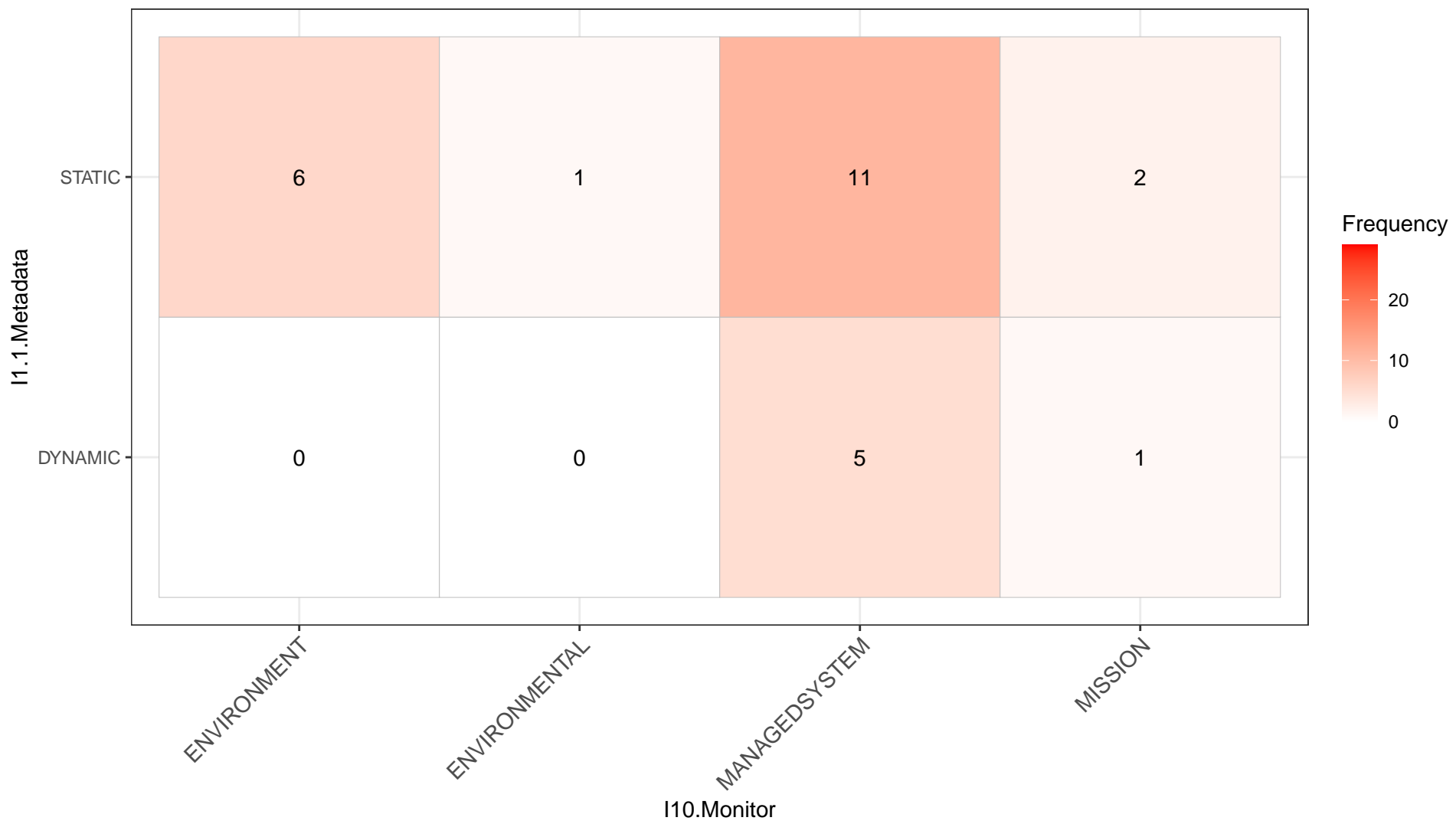
I1.1.Metadata_____Experiment.Method

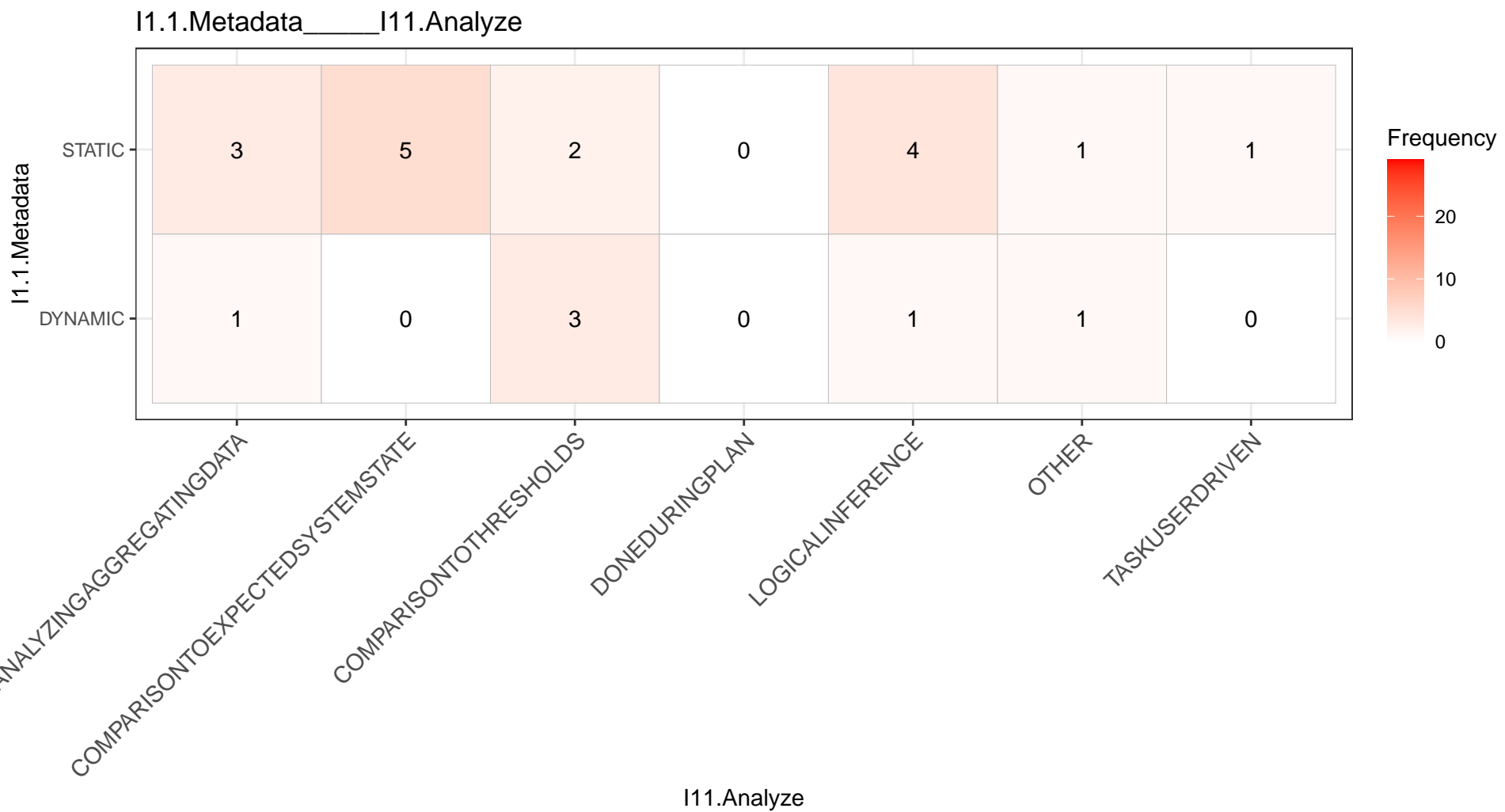






I1.1.Metadata_____I10.Monitor





I1.1.Metadata_____I12.Plan

I1.1.Metadata

STATIC

6

9

2

DYNAMIC

3

1

0

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPLANNINGLANGUAGES

I12.Plan

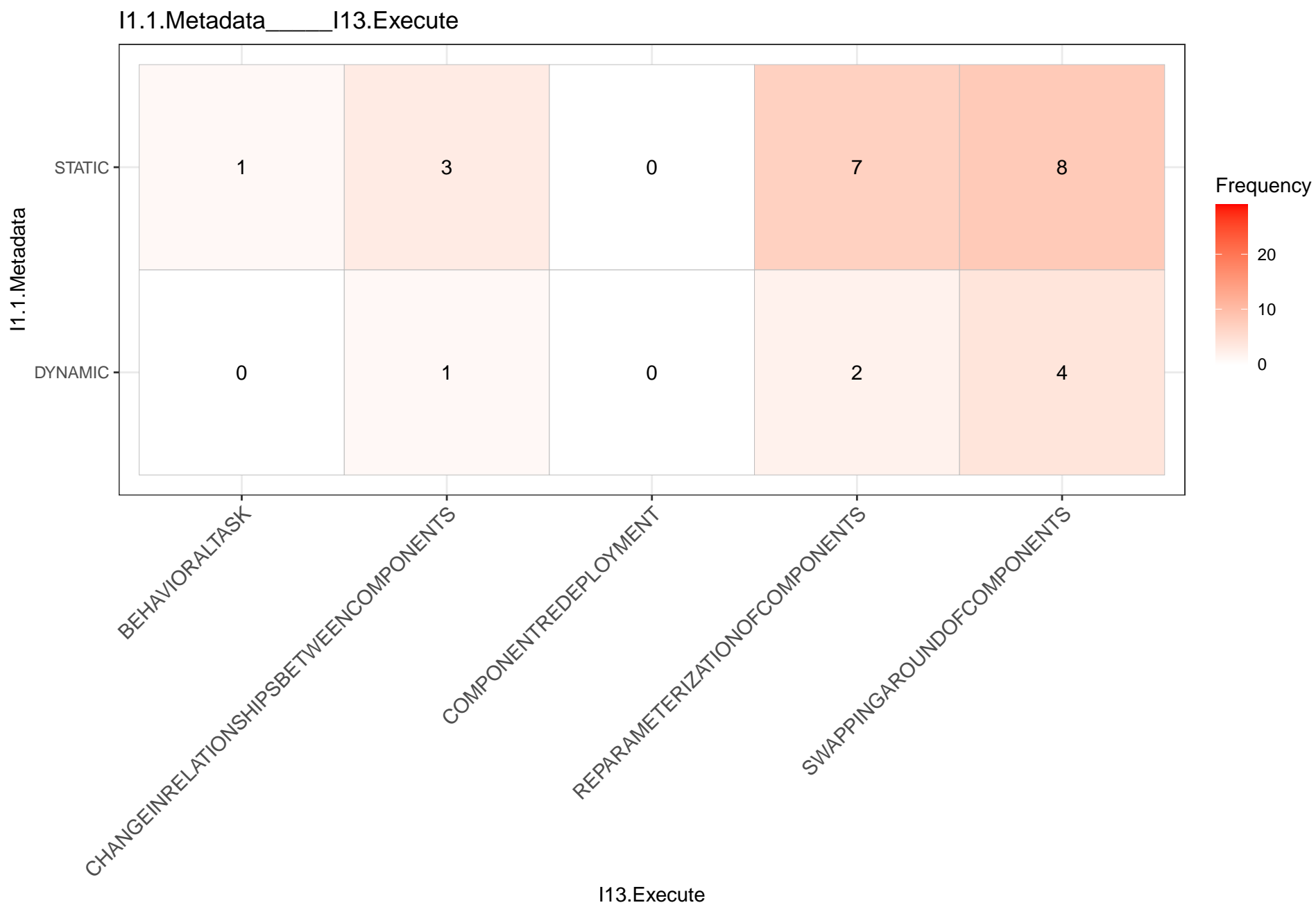
Frequency



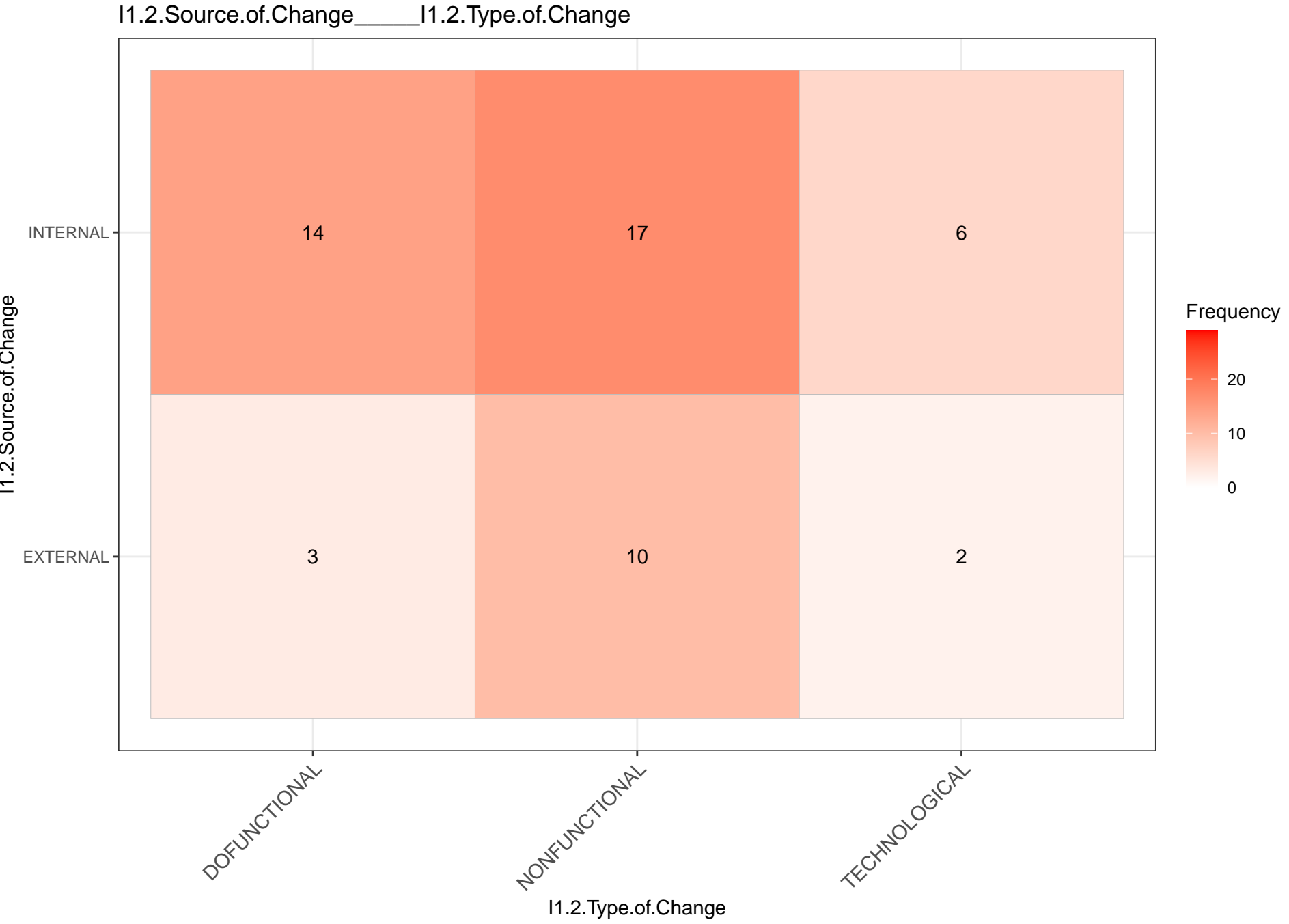
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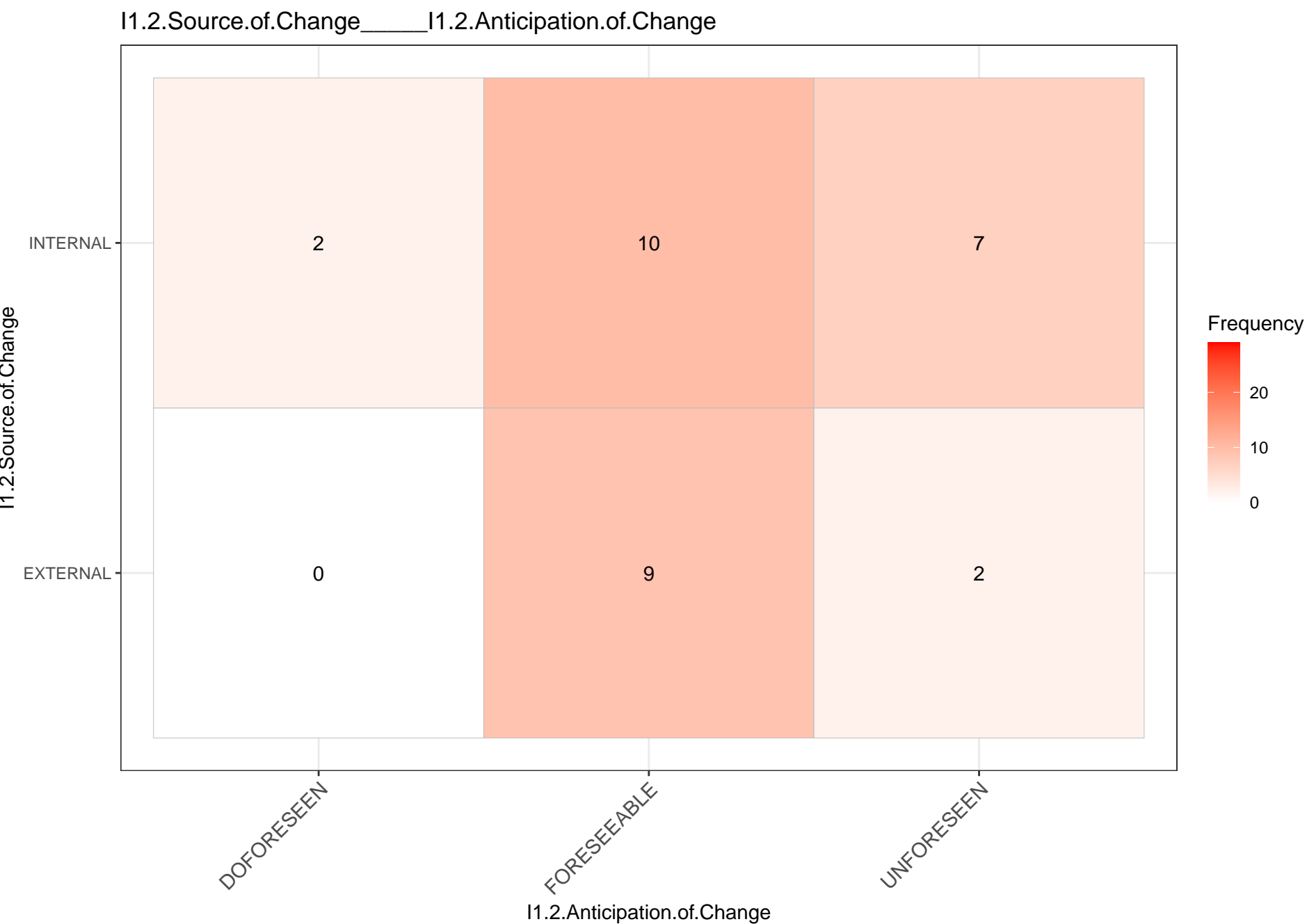
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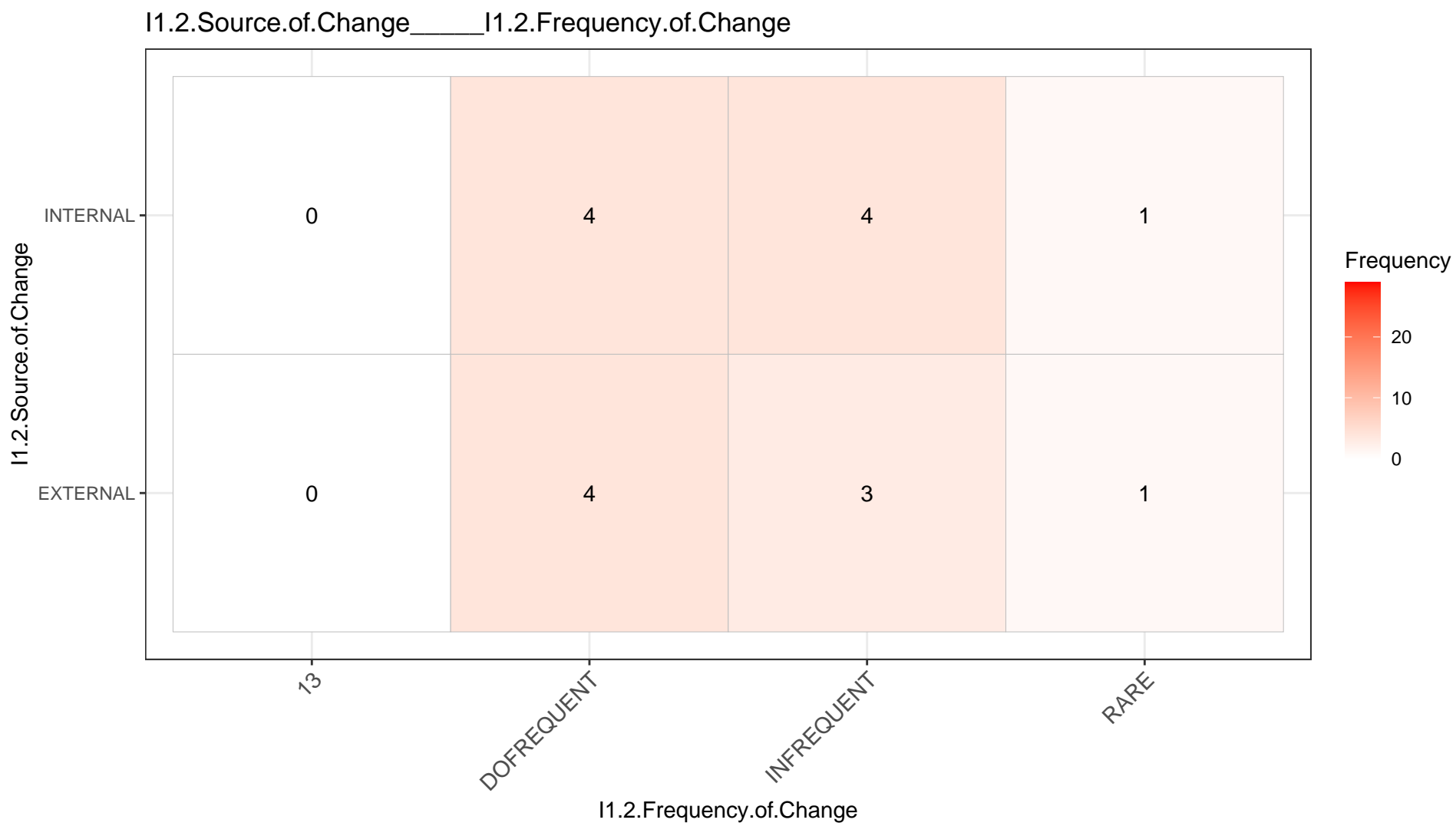
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I1.2.Source.of.Change_____I1.3.Type.of.Mechanism

I1.2.Source.of.Change

INTERNAL

13

18

EXTERNAL

9

10

PARAMETRIC

STRUCTURAL

I1.3.Type.of.Mechanism

Frequency



I1.2.Source.of.Change_____I1.3.Organization.of.Mechanism

I1.2.Source.of.Change

INTERNAL

3

18

EXTERNAL

0

11

DECENTRALIZED

DOCENTRALIZED

I1.3.Organization.of.Mechanism

Frequency



20

10

0

I1.2.Source.of.Change____I1.3.Scope.of.Mechanism

I1.2.Source.of.Change

INTERNAL

7

19

EXTERNAL

5

8

GLOBAL

LOCAL

I1.3.Scope.of.Mechanism

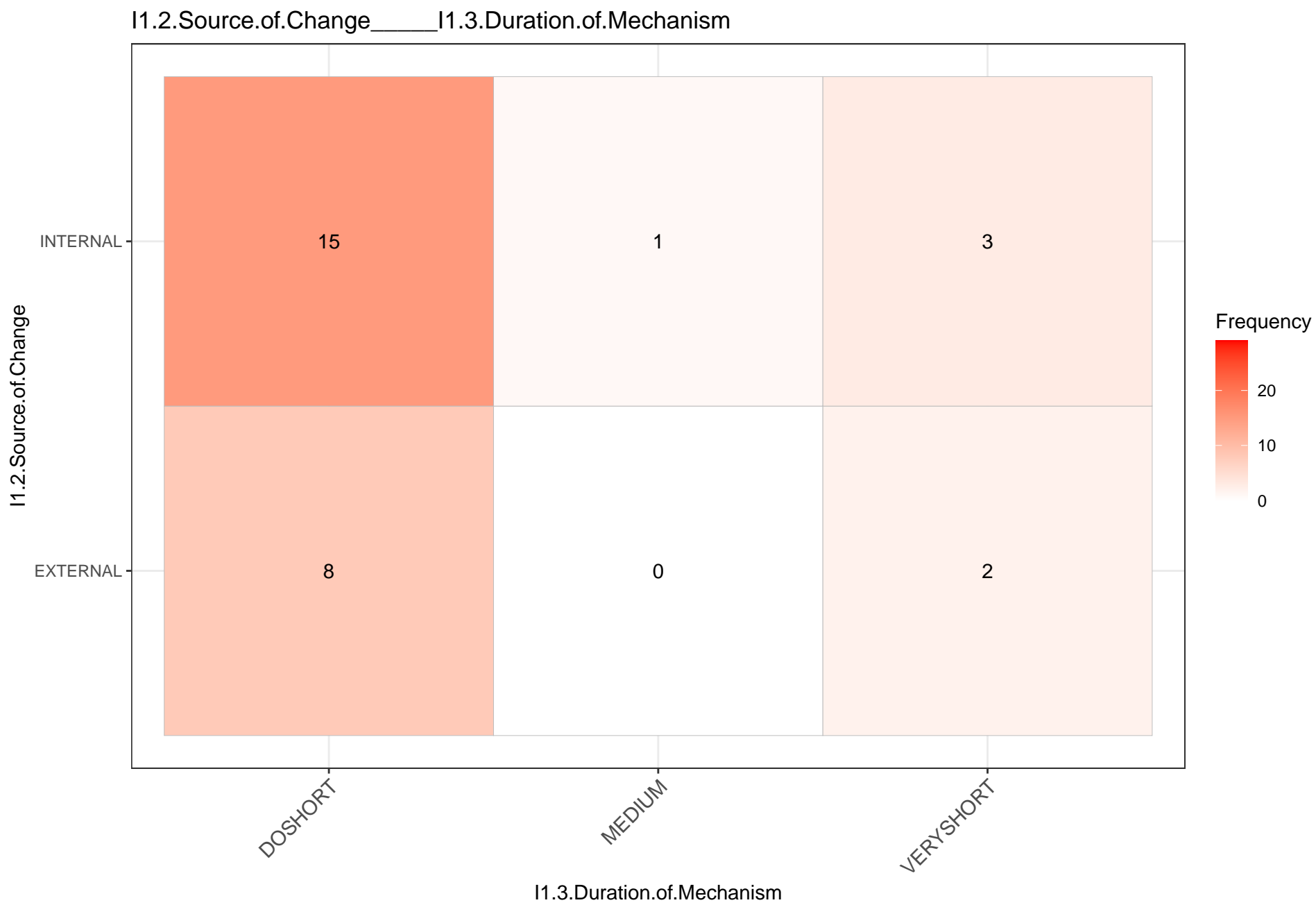
Frequency

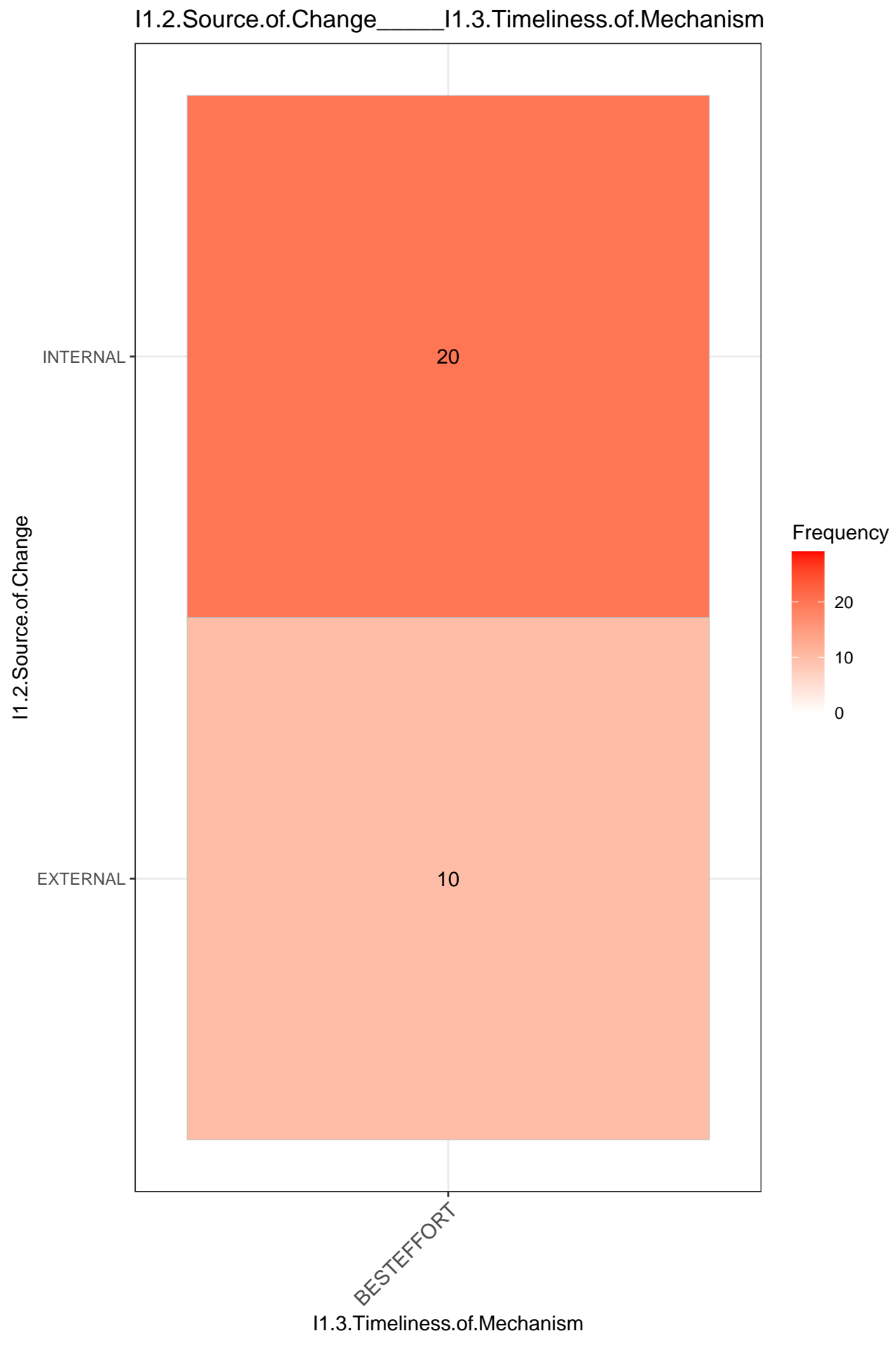


20

10

0





I1.2.Source.of.Change_____I1.3.Trigger.of.Mechanism

I1.2.Source.of.Change

INTERNAL

19

1

EXTERNAL

9

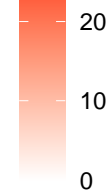
2

EVENTTRIGGER

TIMETRIGGER

I1.3.Trigger.of.Mechanism

Frequency



I1.2.Source.of.Change_____I1.4.Criticality.of.Effects

I1.2.Source.of.Change

INTERNAL

15

4

EXTERNAL

7

4

MISSIONCRITICAL

SAFETYCRITICAL

I1.4.Criticality.of.Effects

Frequency



20

10

0

I1.2.Source.of.Change_____I1.4.Predictability.of.Effects

I1.2.Source.of.Change

INTERNAL

EXTERNAL

DODETERMINISTIC

NONDETERMINISTIC

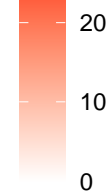
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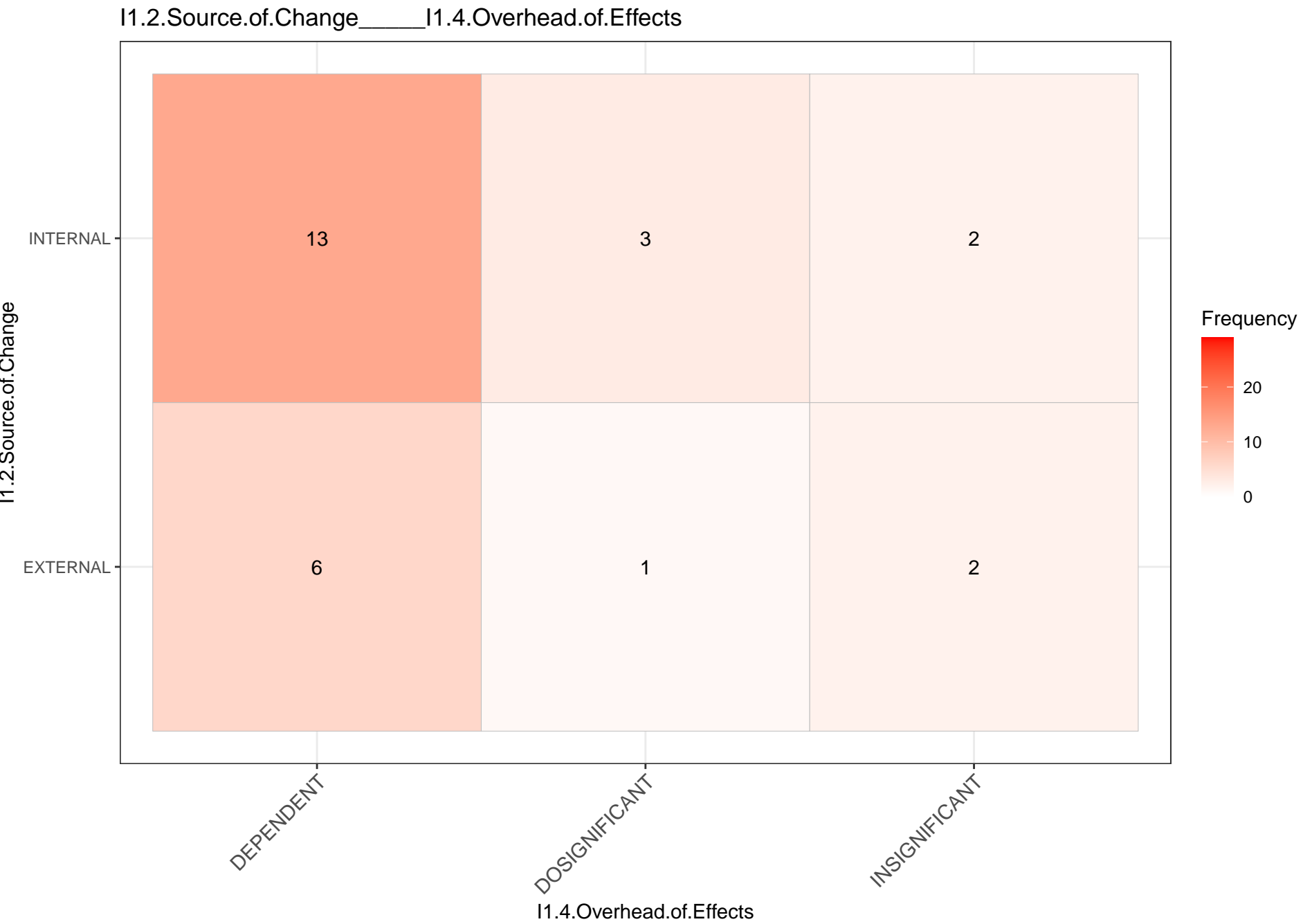
13

5

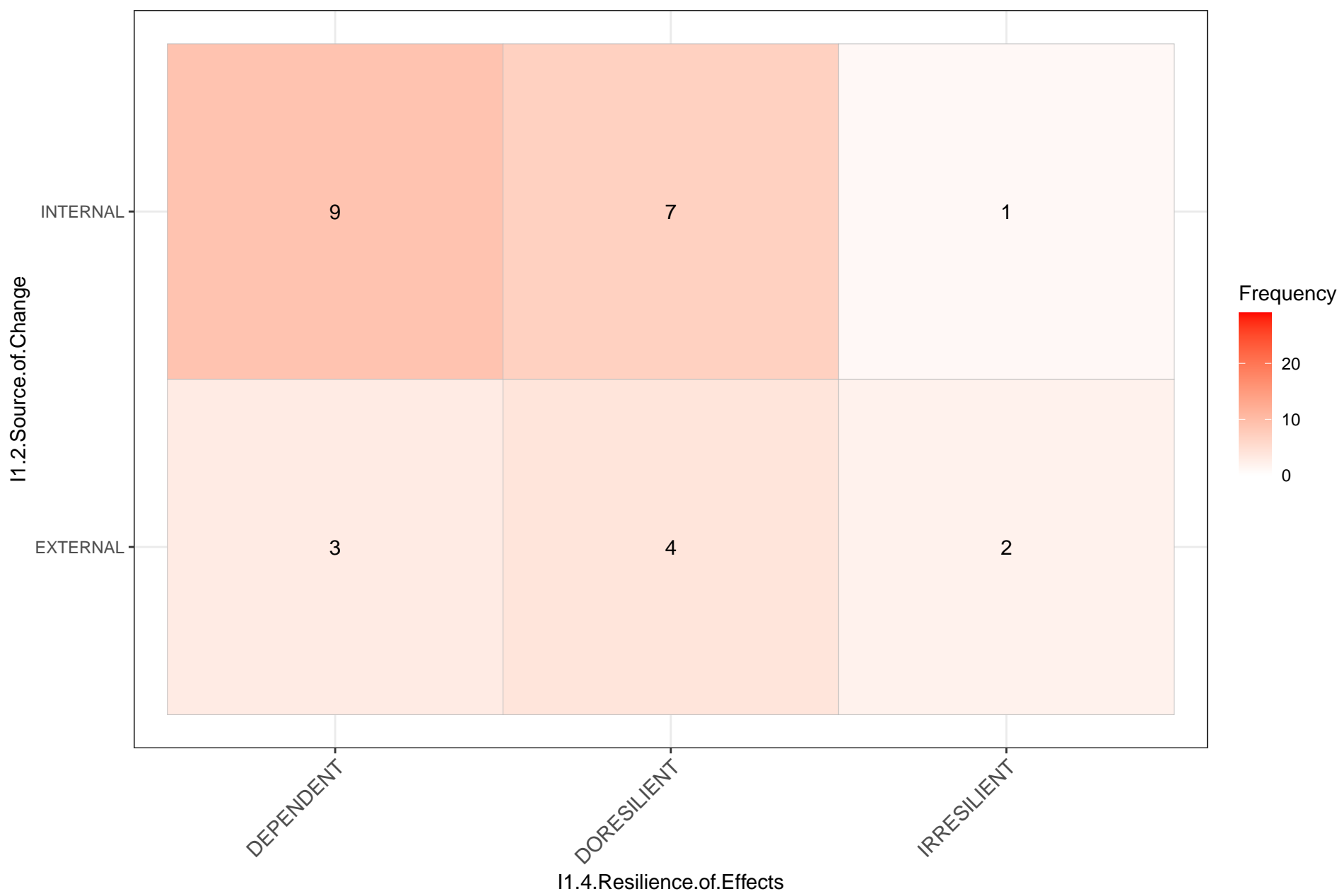
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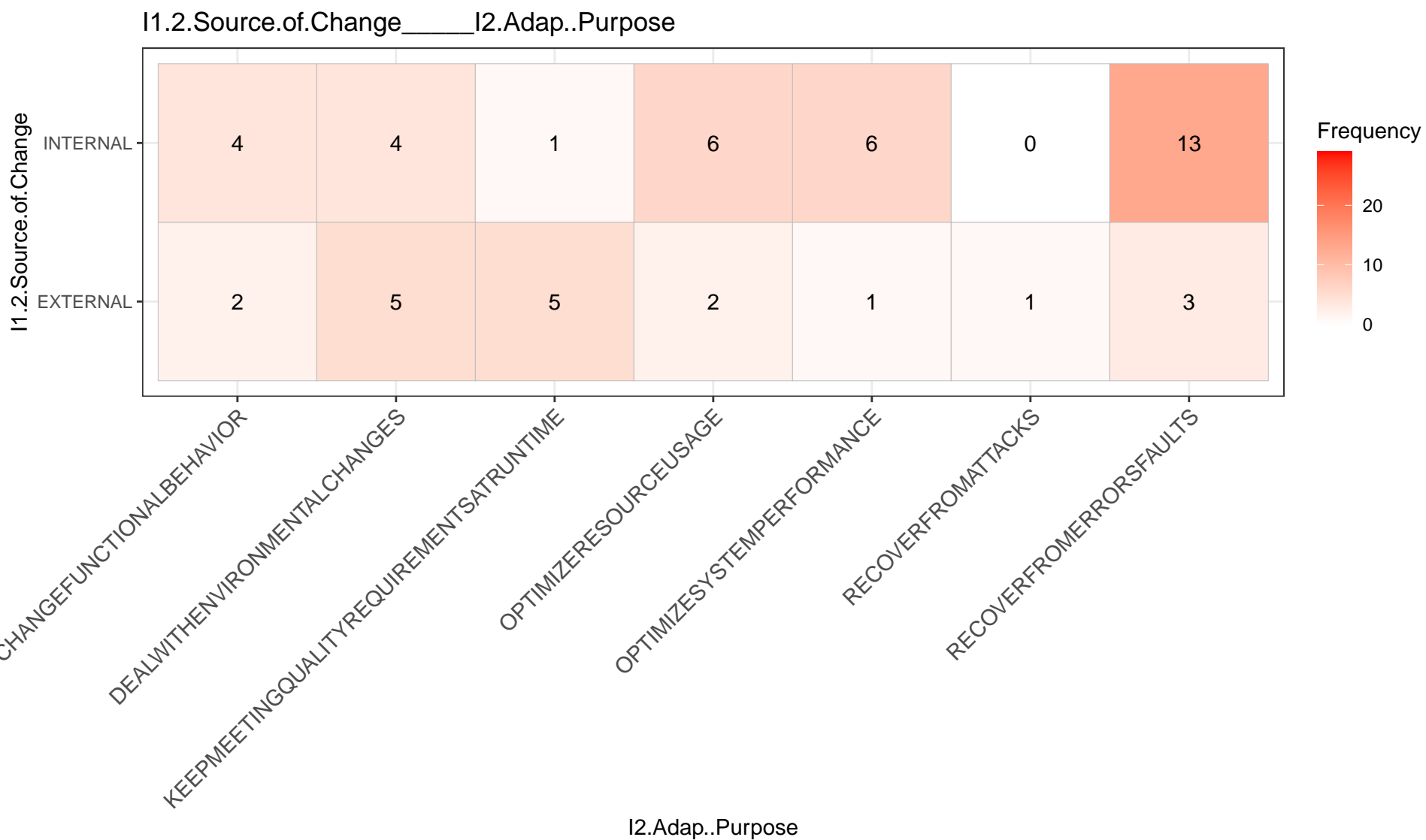
Frequency

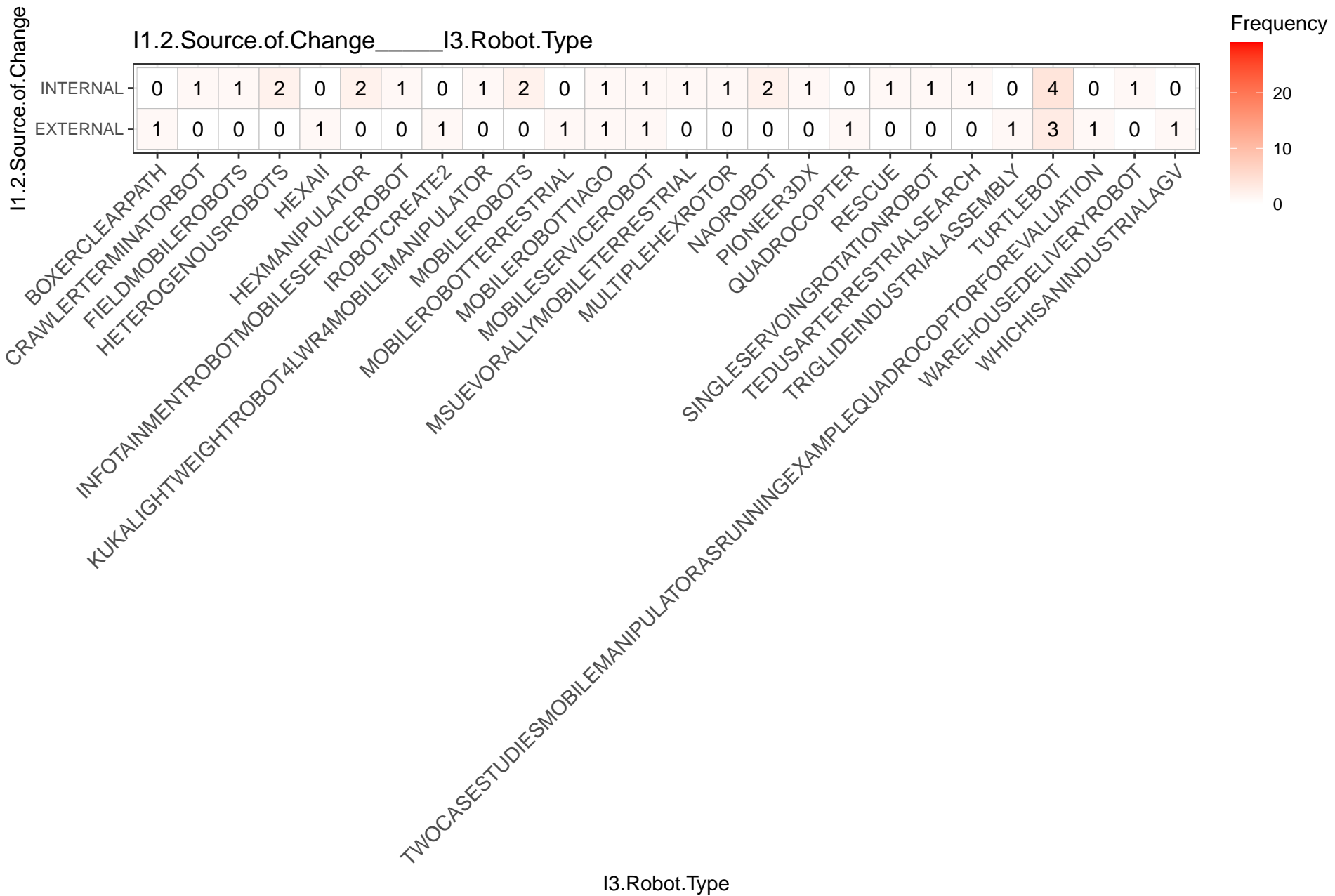




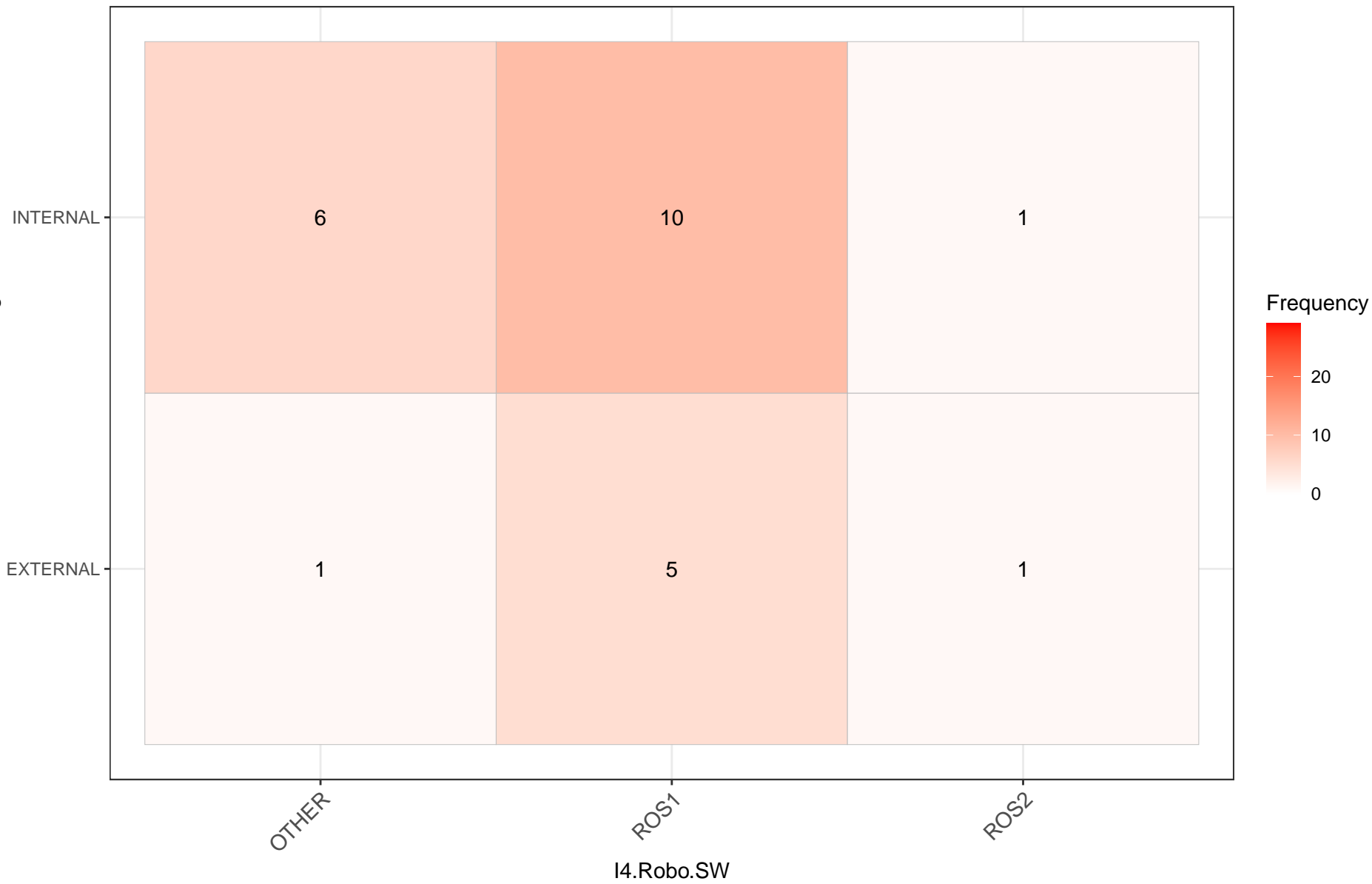
I1.2.Source.of.Change_____I1.4.Resilience.of.Effects



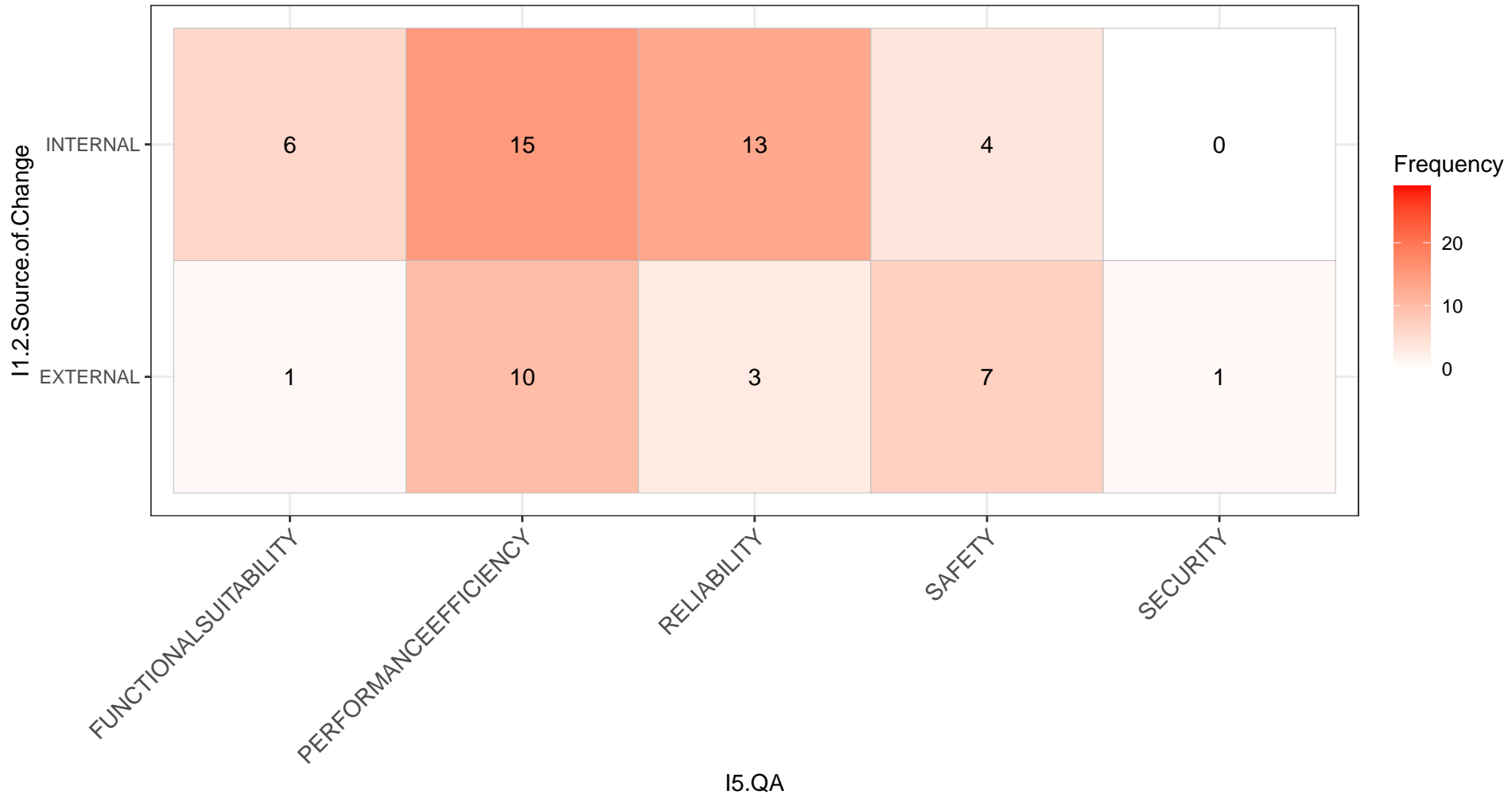




I1.2.Source.of.Change____I4.Robo.SW



I1.2.Source.of.Change_____I5.QA



I1.2.Source.of.Change_____I6.Independence

I1.2.Source.of.Change

INTERNAL

EXTERNAL

DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence

Frequency



20

10

0

8

2

11

3

1

7

I1.2.Source.of.Change____I7.Deployment.Realness

I1.2.Source.of.Change

INTERNAL

11

7

EXTERNAL

3

7

REAL

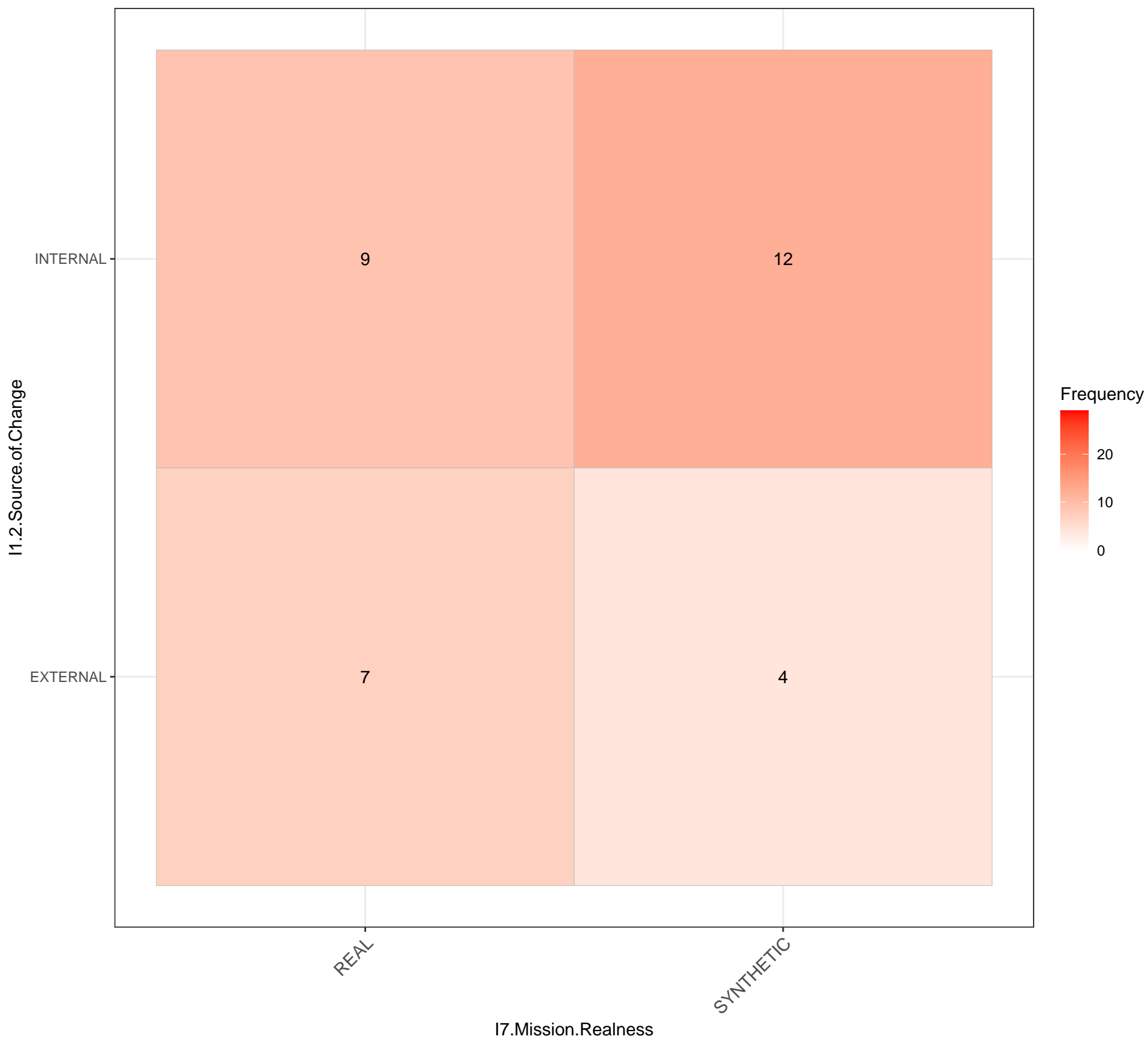
SIMULATED

I7.Deployment.Realness

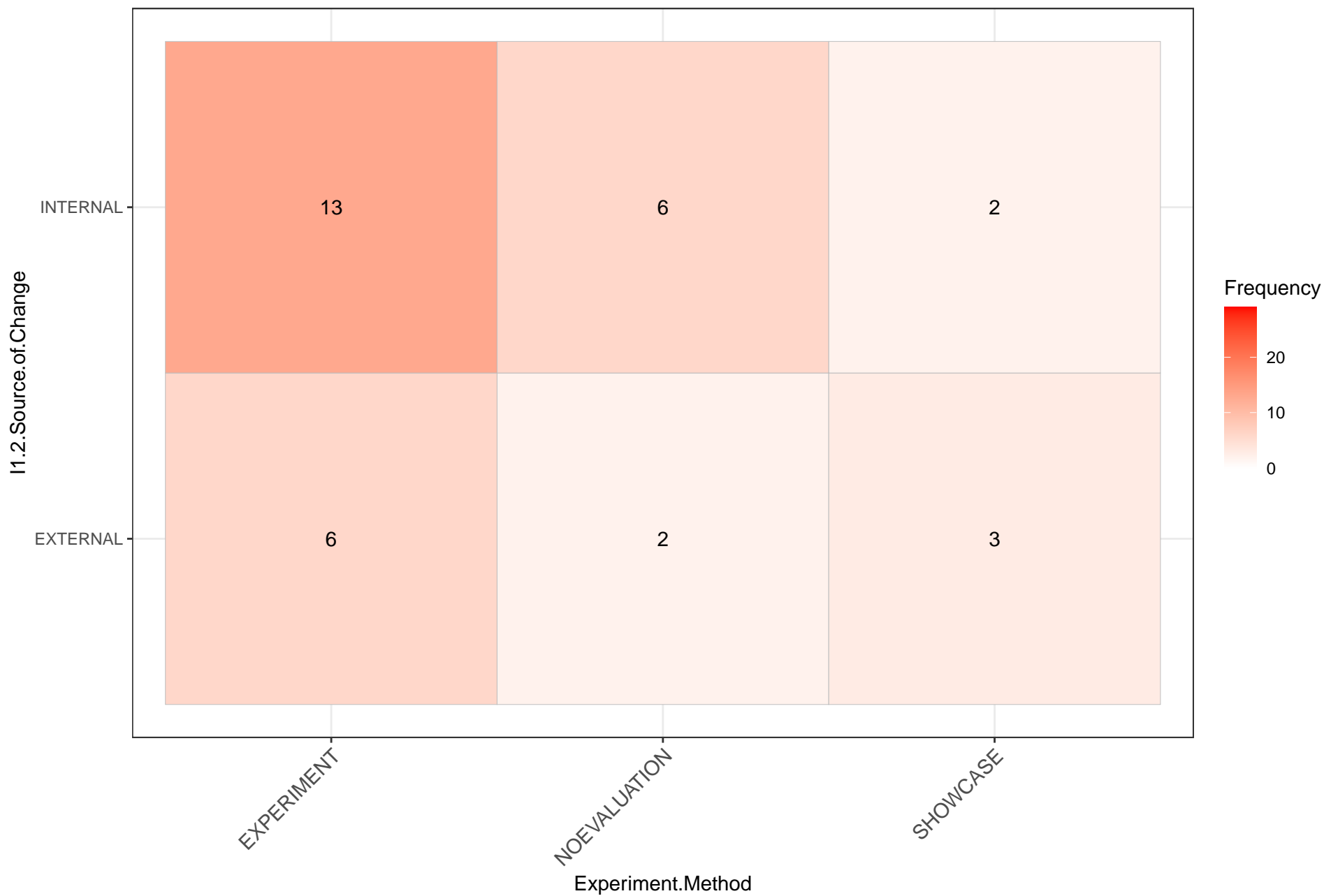
Frequency



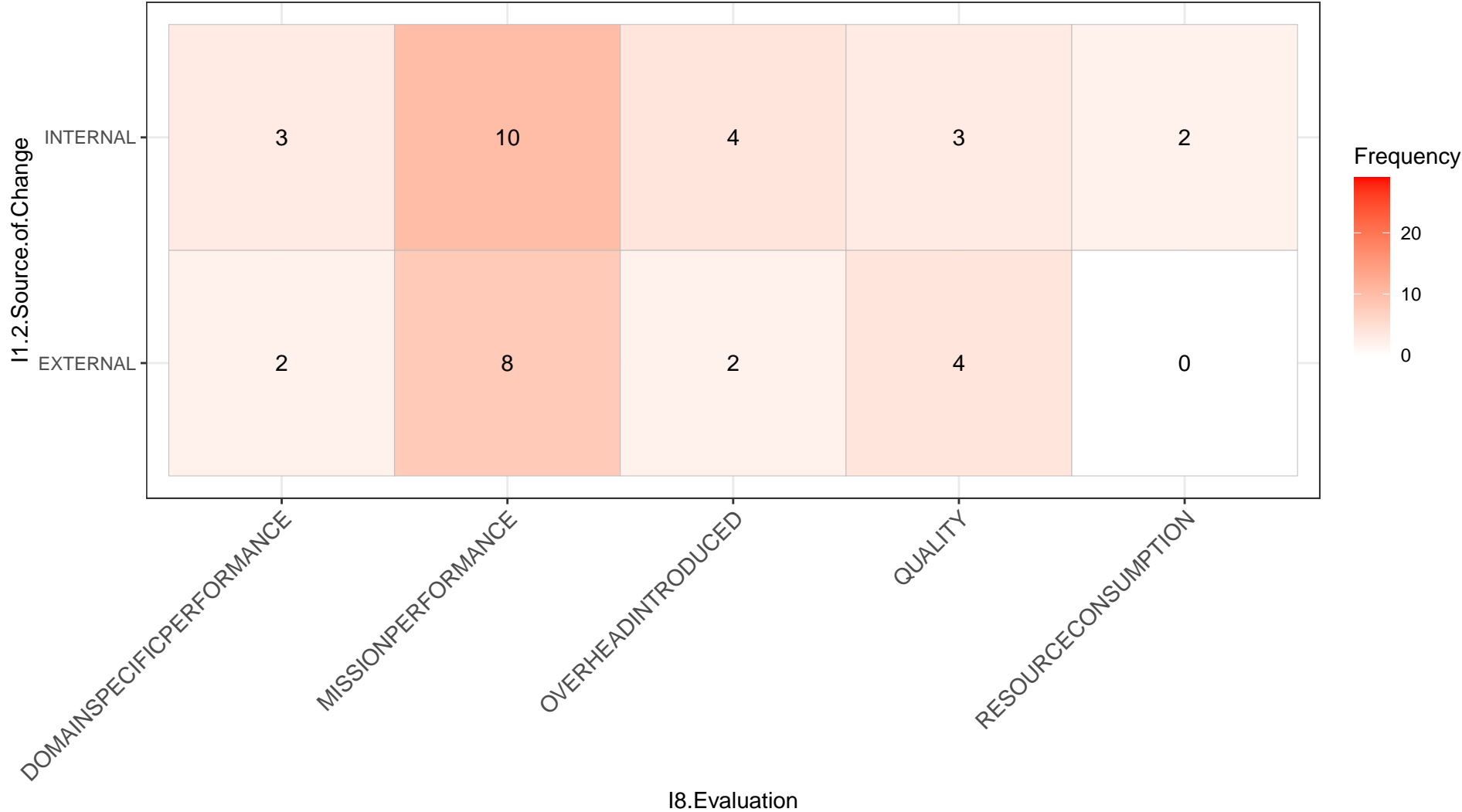
I1.2.Source.of.Change_____I7.Mission.Realness

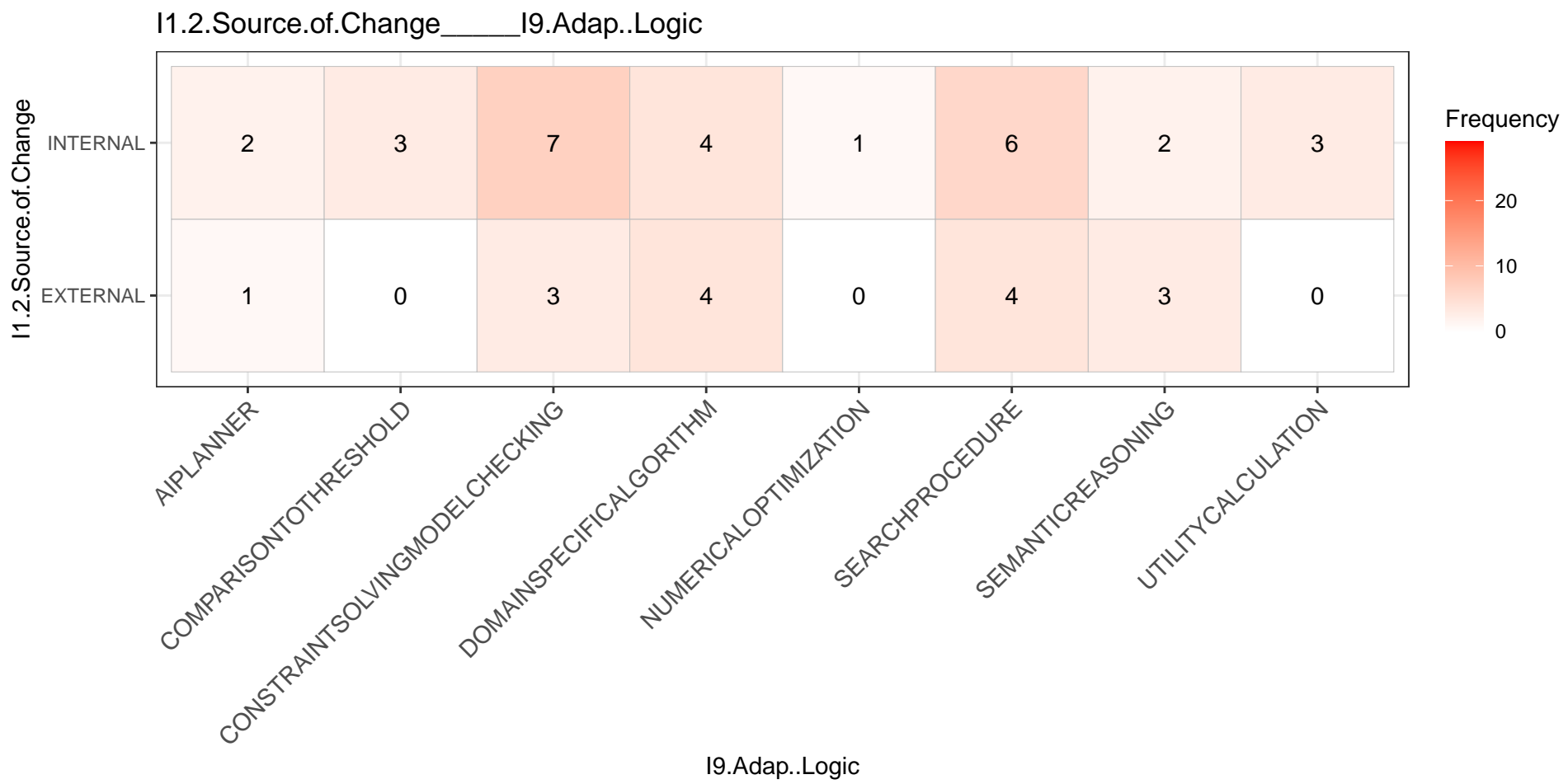


I1.2.Source.of.Change_____Experiment.Method

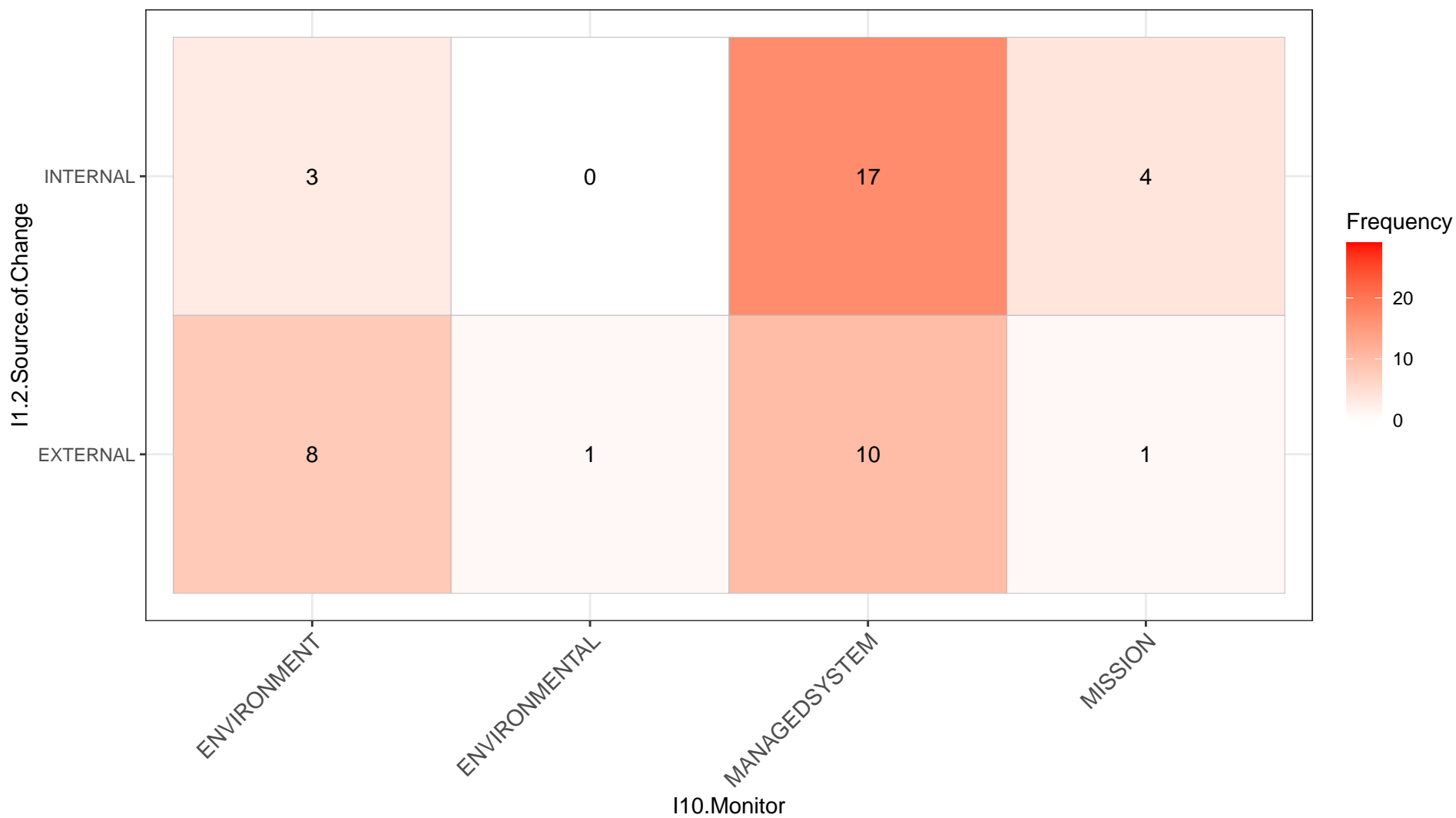


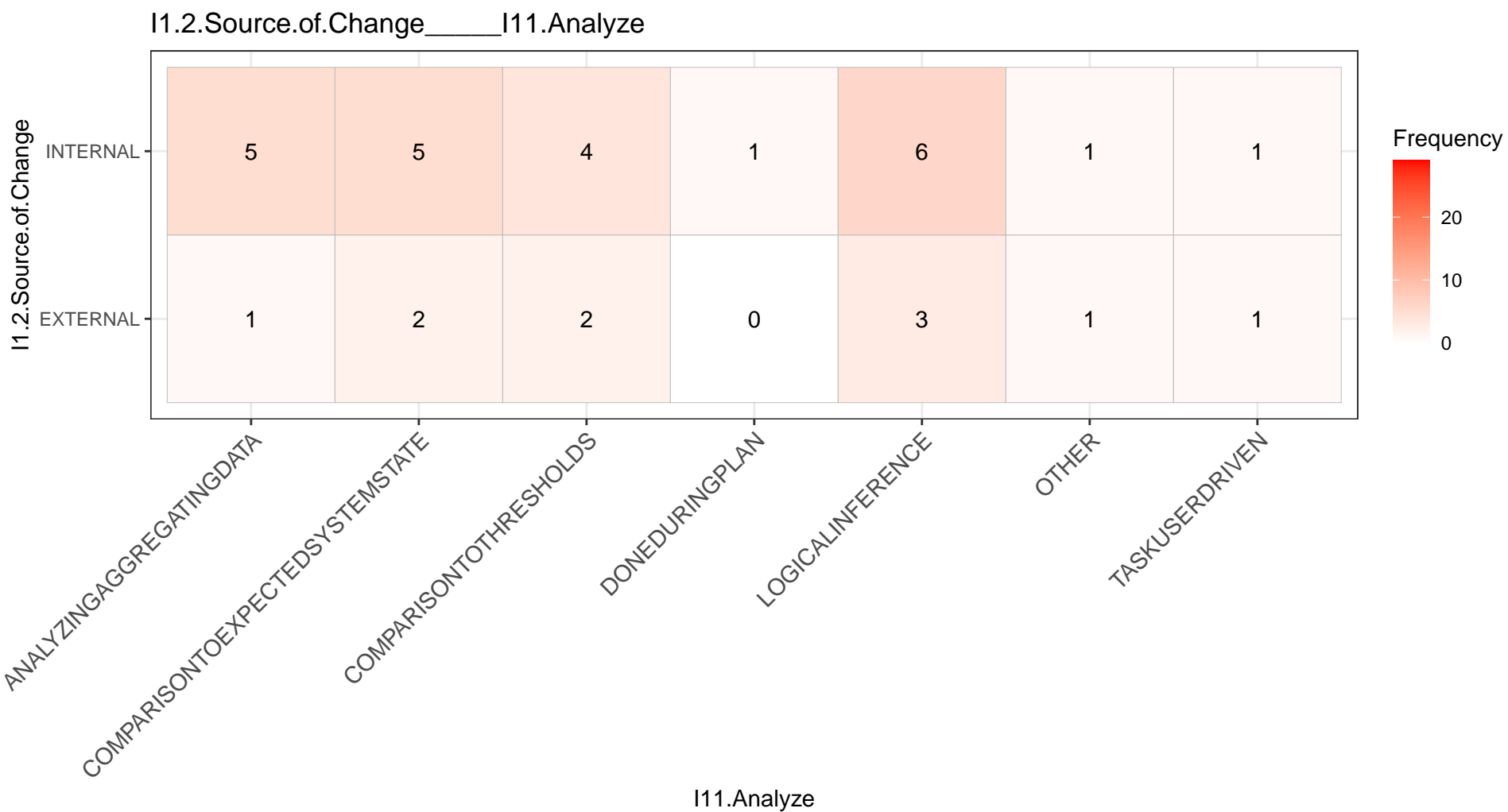
I1.2.Source.of.Change_____I8.Evaluation





I1.2.Source.of.Change____I10.Monitor





I1.2.Source.of.Change_____I12.Plan

I1.2.Source.of.Change

INTERNAL

EXTERNAL

Frequency

20

10

0

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPANNINGLANGUAGES

I12.Plan

10

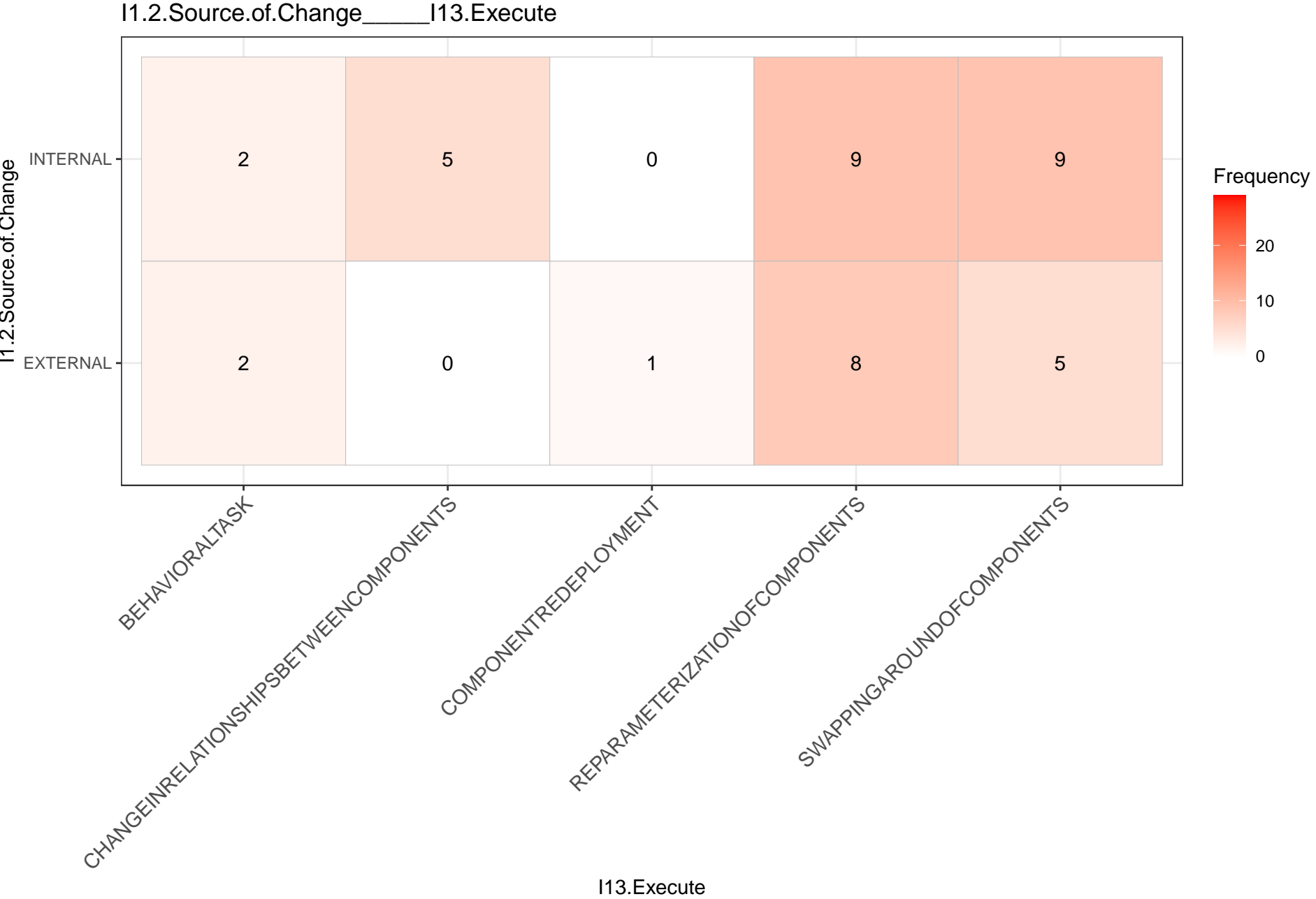
8

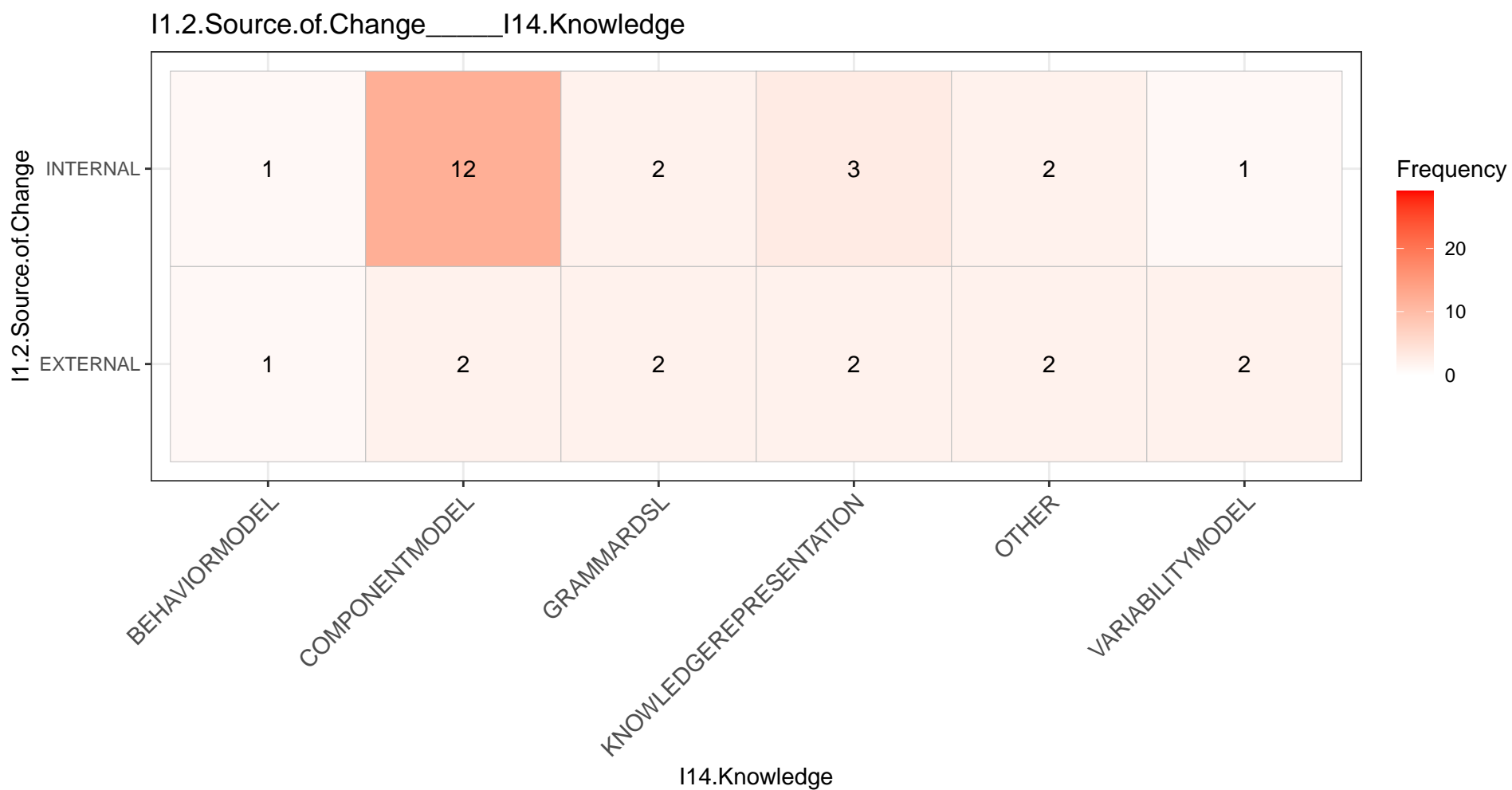
2

5

6

0





I1.2.Type.of.Change_____I1.2.Anticipation.of.Change

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

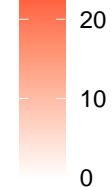
DOFORESEEN

FORESEEABLE

UNFORESEEN

I1.2.Anticipation.of.Change

Frequency



0

5

2

0

15

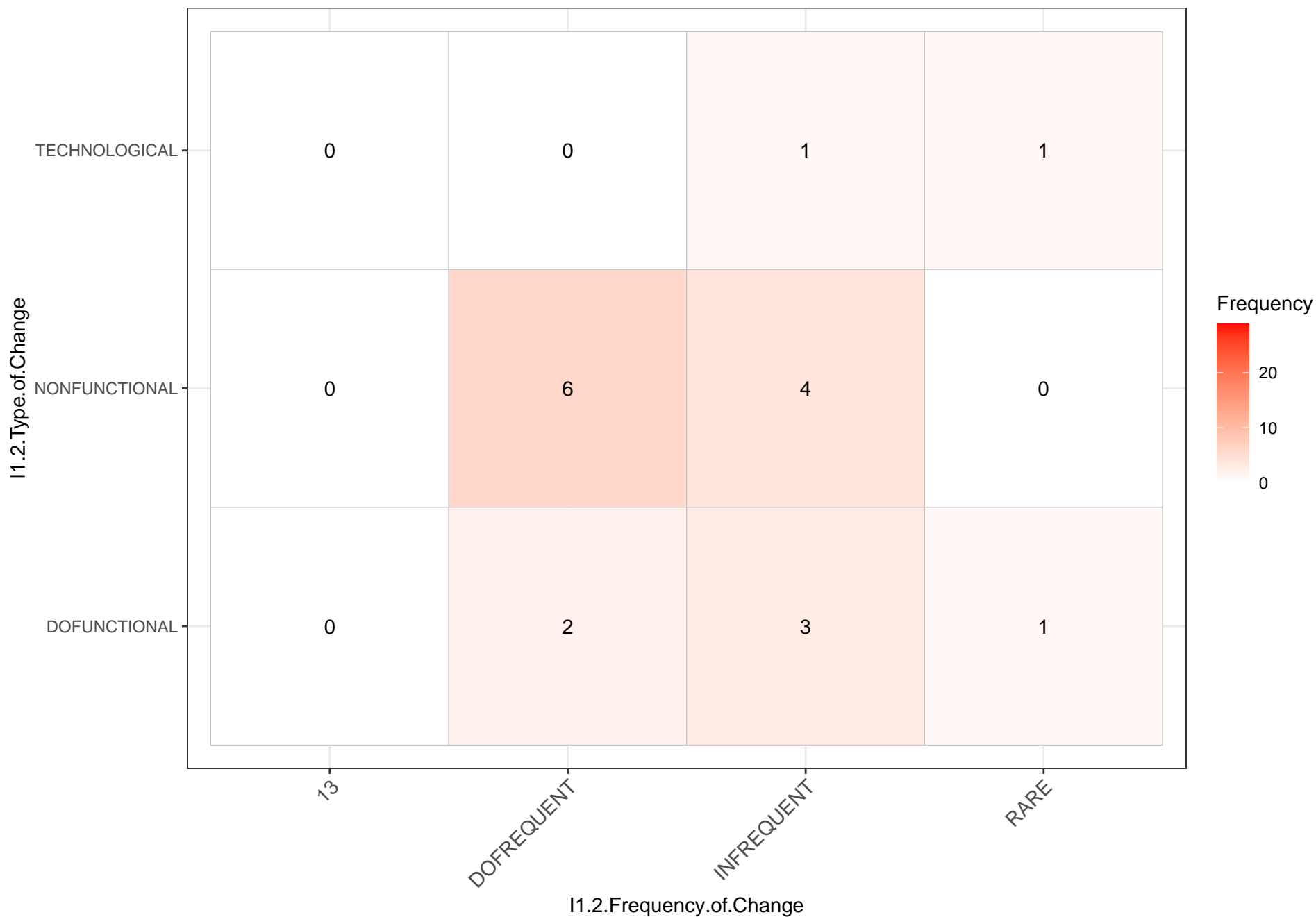
6

2

7

6

I1.2.Type.of.Change_____I1.2.Frequency.of.Change



I1.2.Type.of.Change_____I1.3.Type.of.Mechanism

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

PARAMETRIC

STRUCTURAL

I1.3.Type.of.Mechanism

Frequency



20

10

0

3

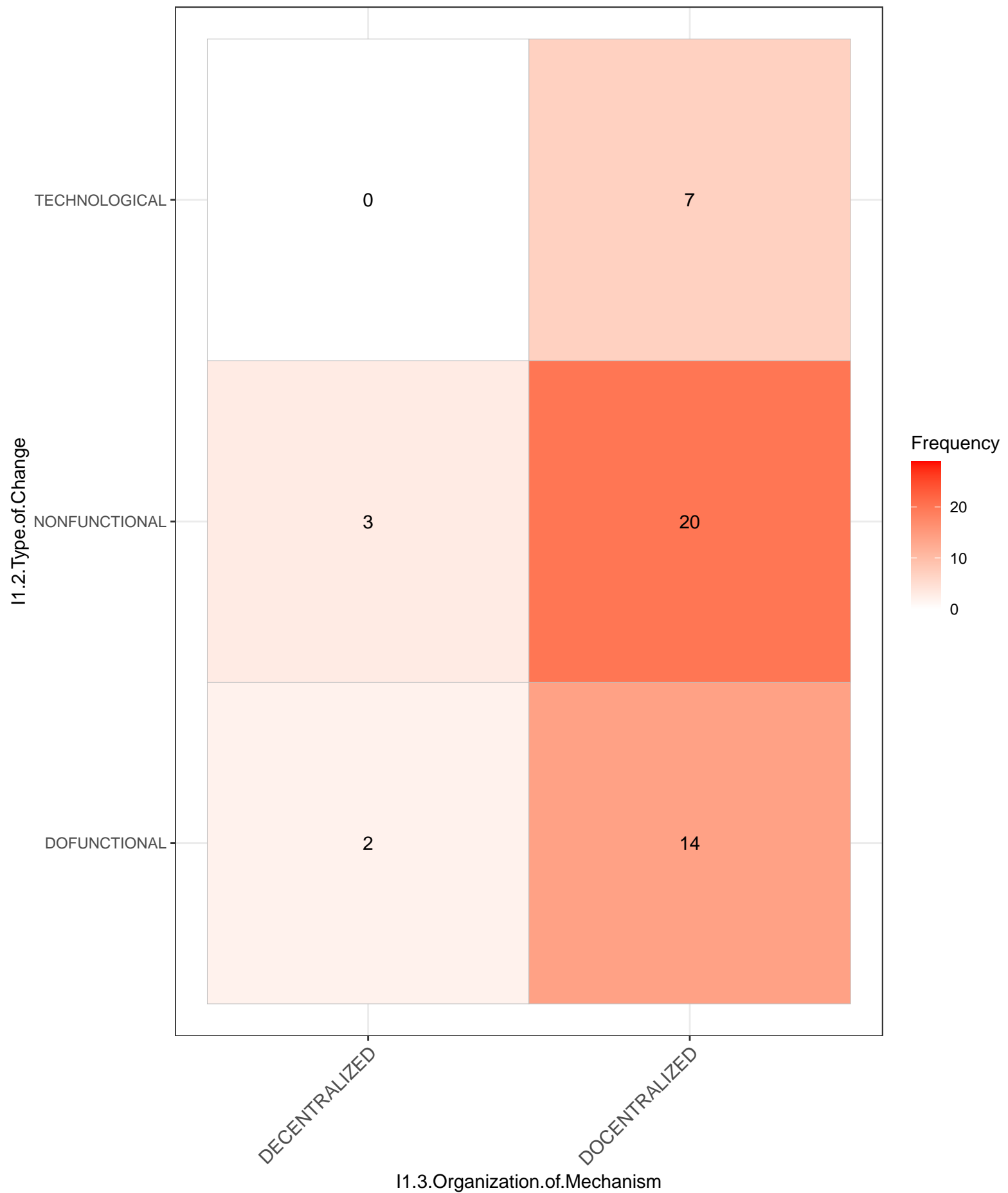
6

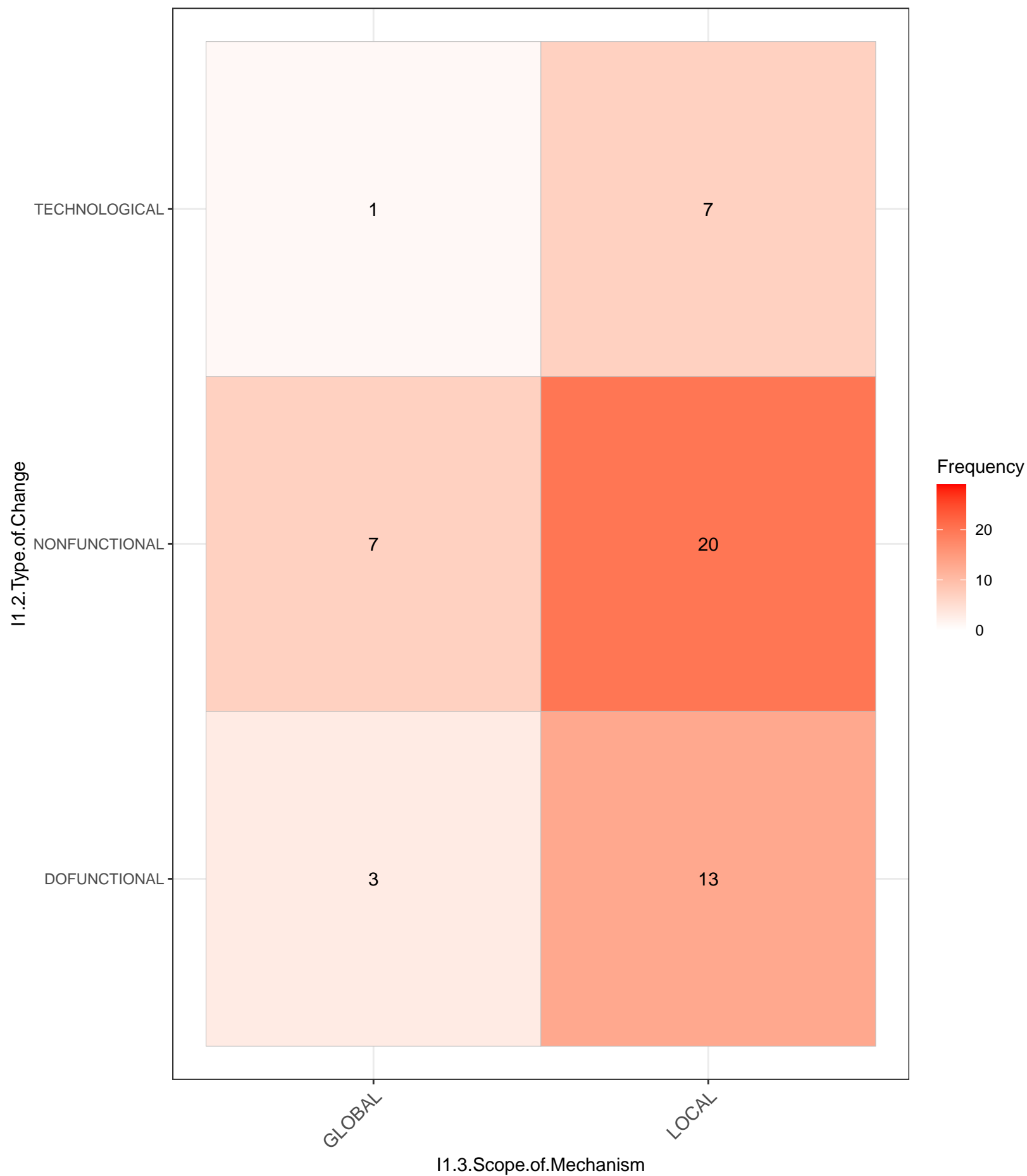
15

20

8

15





I1.2.Type.of.Change_____I1.3.Duration.of.Mechanism

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

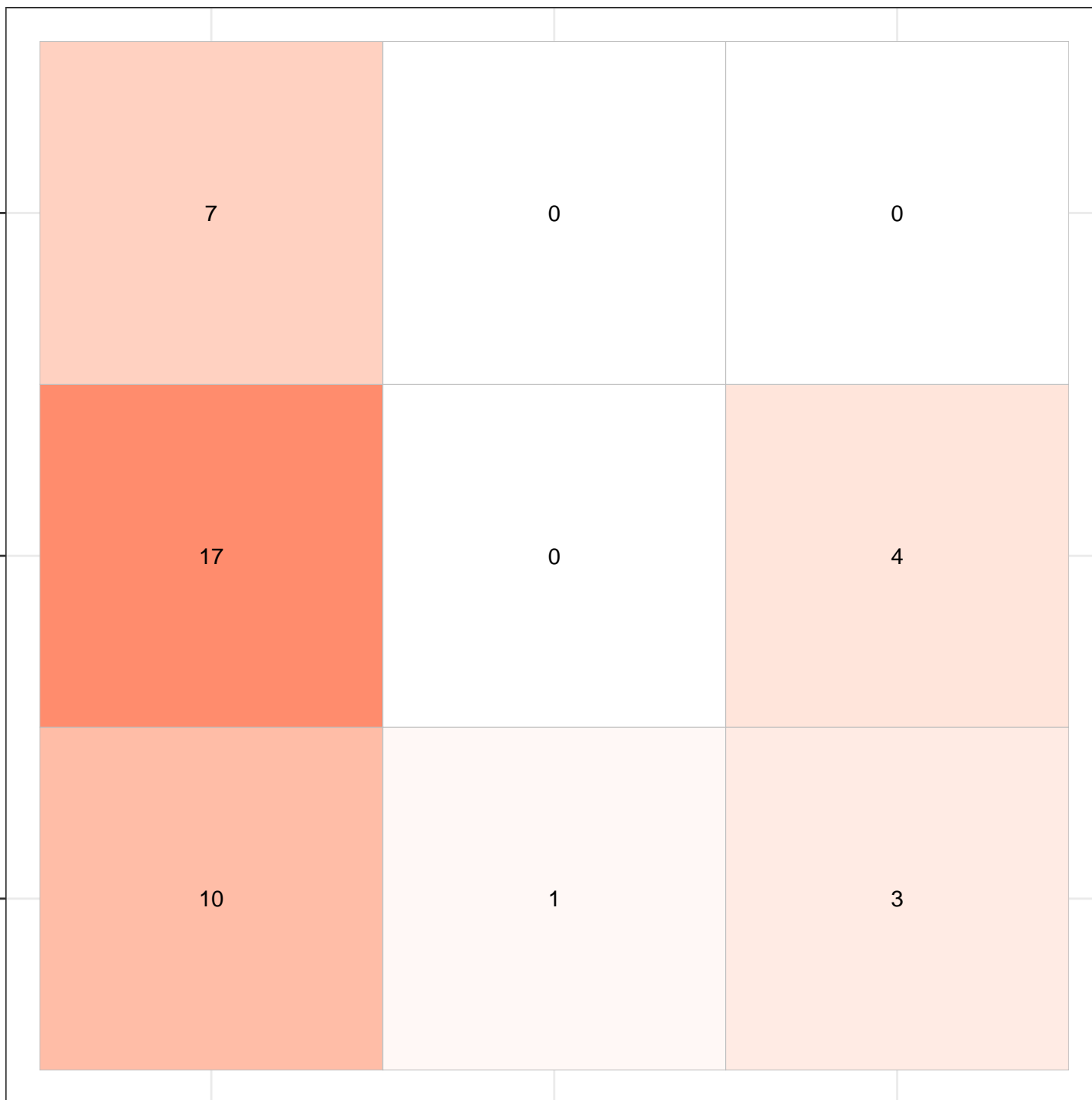
DOSHORT

MEDIUM

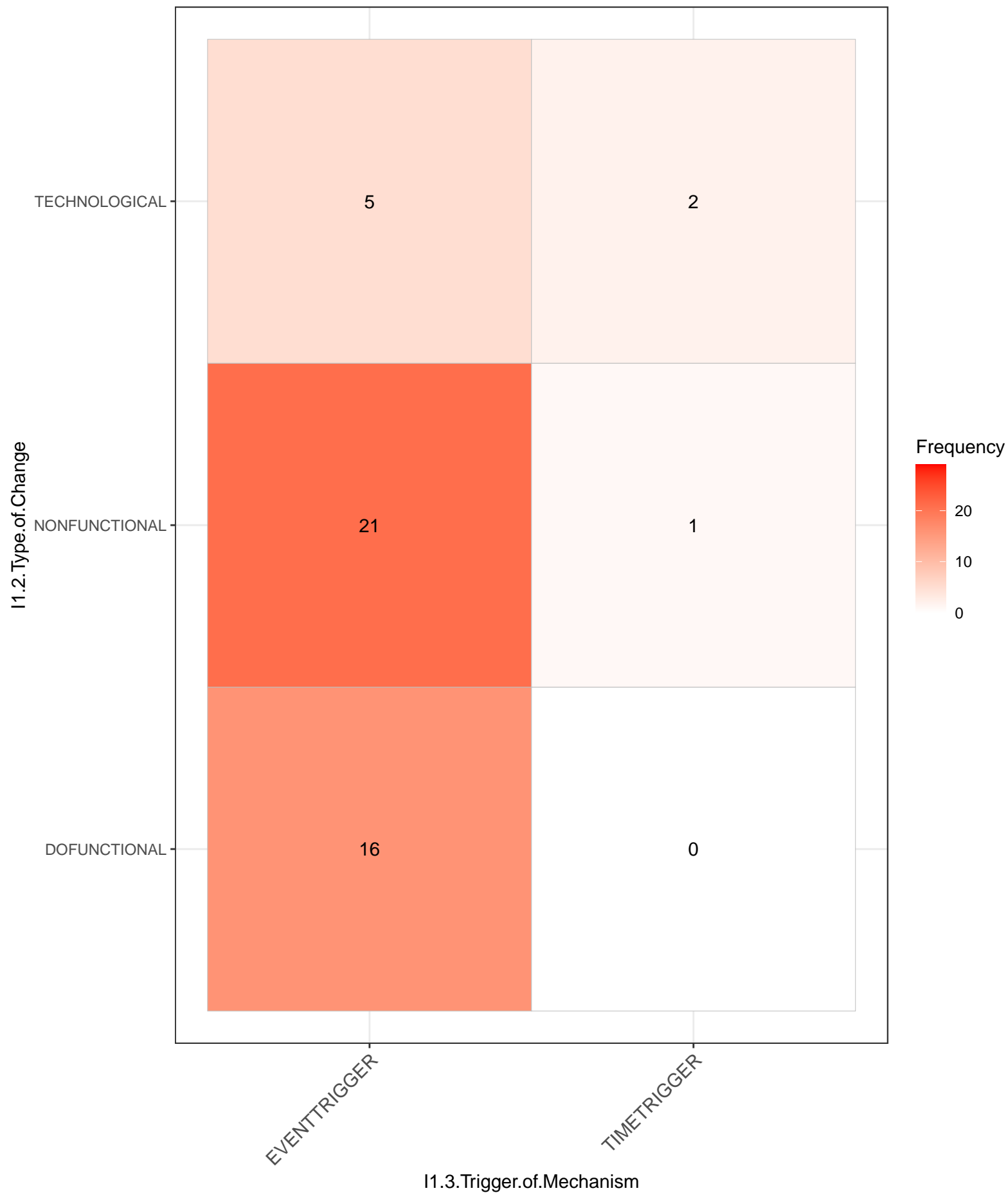
VERYSHORT

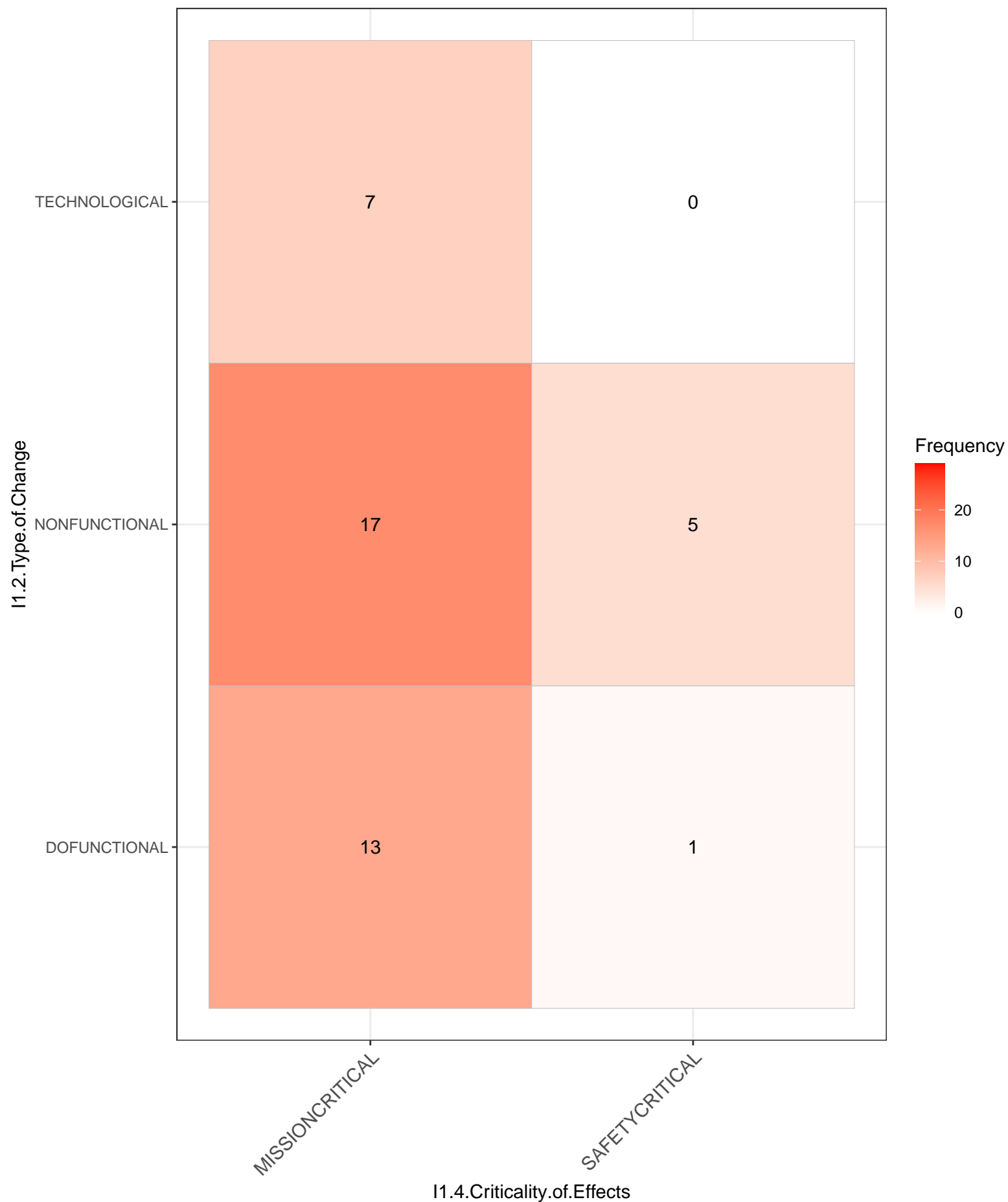
I1.3.Duration.of.Mechanism

Frequency

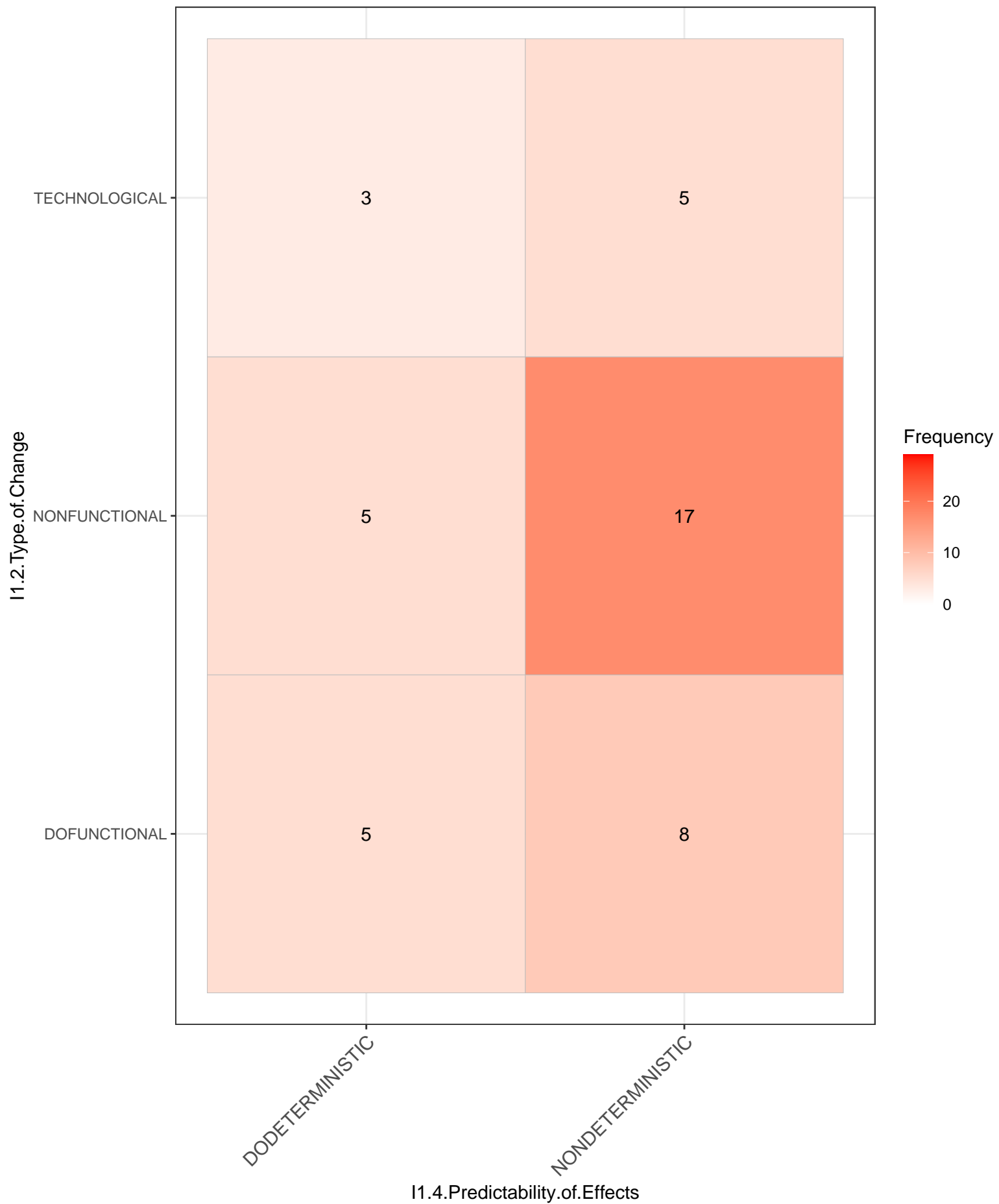


I1.2.Type.of.Change_____I1.3.Trigger.of.Mechanism





I1.2.Type.of.Change_____I1.4.Predictability.of.Effects



I1.2.Type.of.Change_____I1.4.Overhead.of.Effects

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

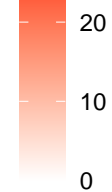
DEPENDENT

DOSIGNIFICANT

INSIGNIFICANT

I1.4.Overhead.of.Effects

Frequency



6

0

0

11

4

3

9

2

2

I1.2.Type.of.Change_____I1.4.Resilience.of.Effects

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

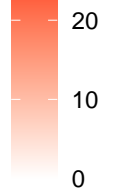
DEPENDENT

DORESILIENT

IRRESILIENT

I1.4.Resilience.of.Effects

Frequency



6

0

1

7

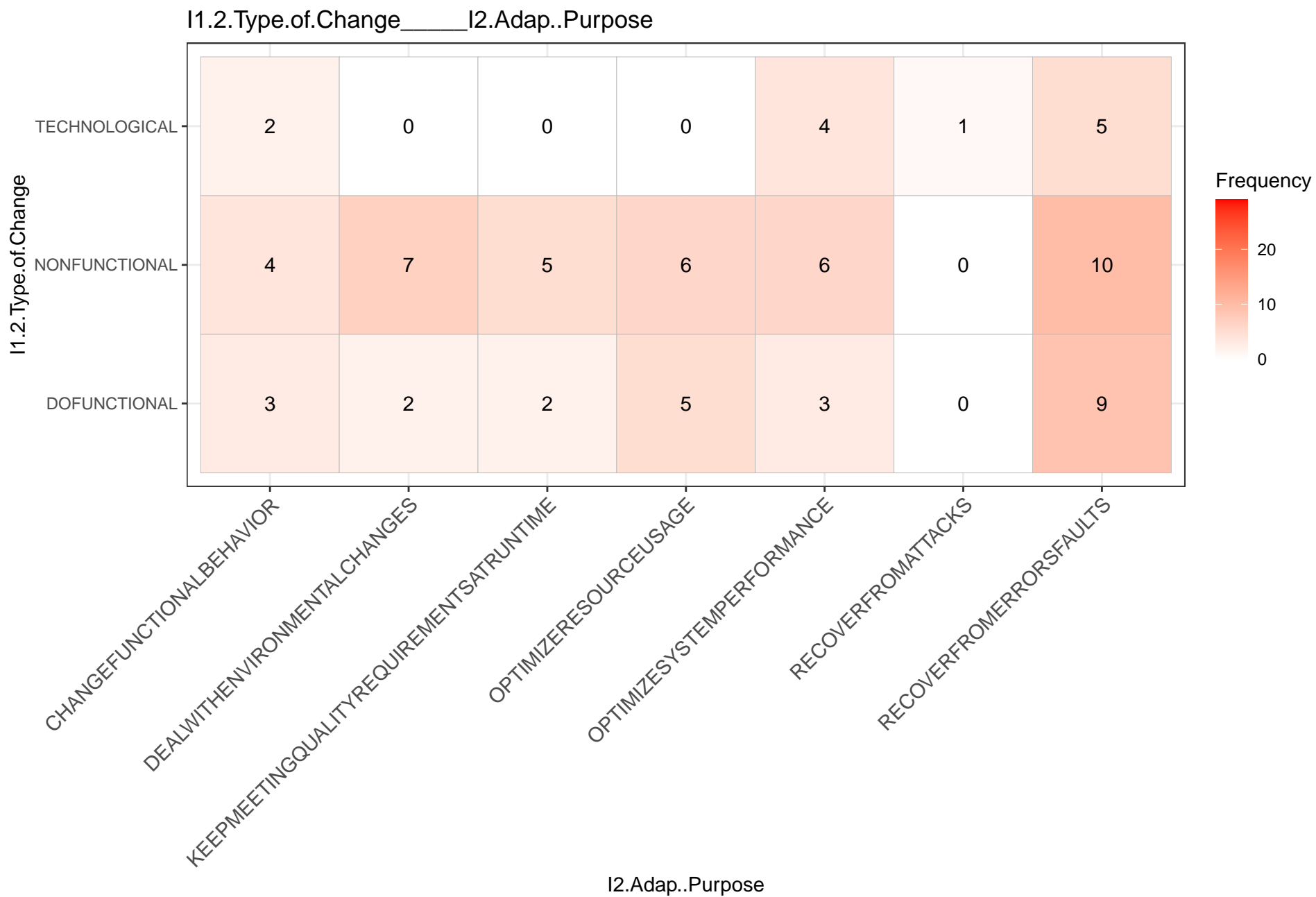
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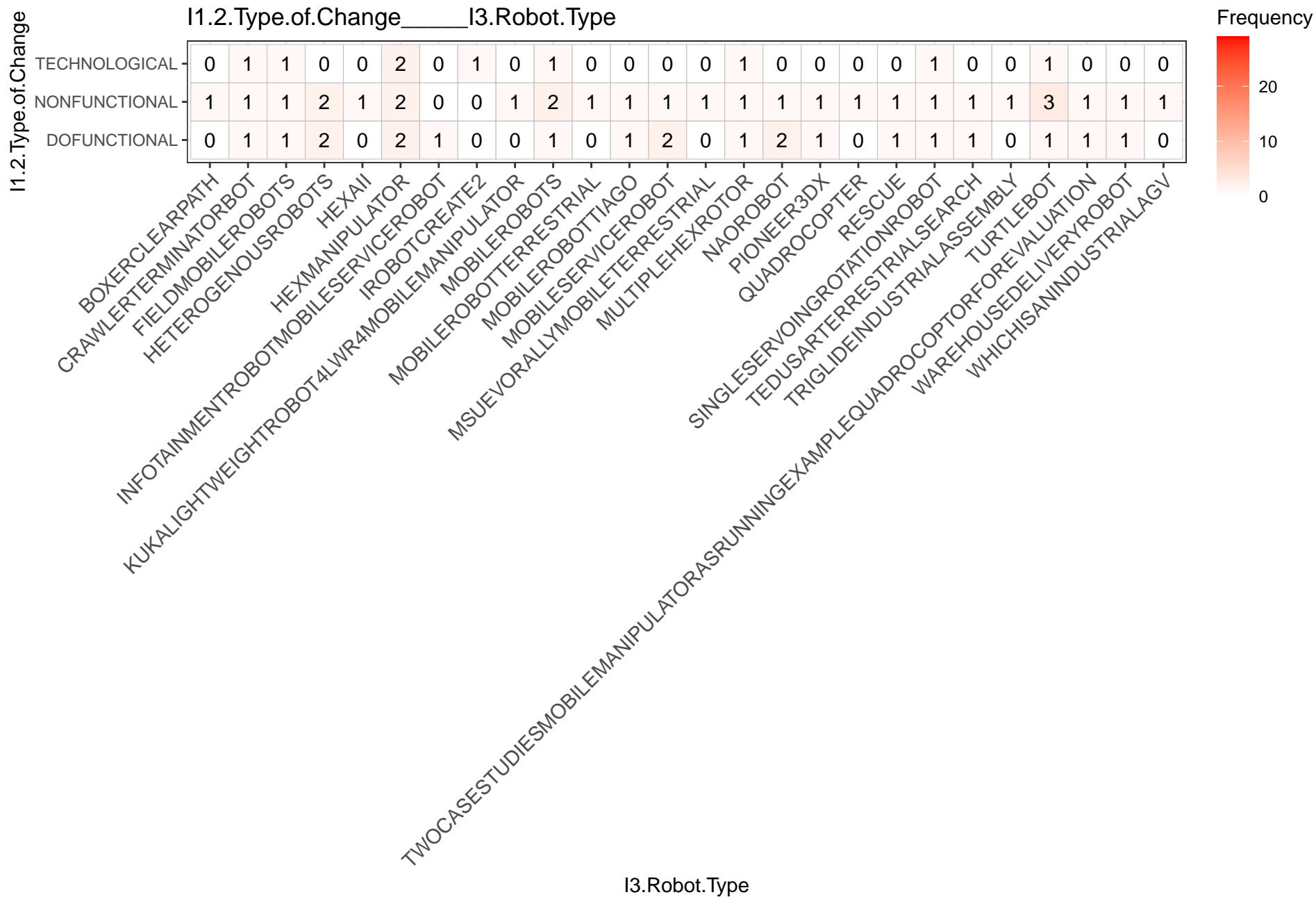
3

7

3

1





I1.2.Type.of.Change_____I4.Robo.SW

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

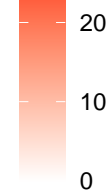
OTHER

ROS1

ROS2

I4.Robo.SW

Frequency



6

0

0

5

11

1

4

8

1

I1.2.Type.of.Change_____I5.QA

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

FUNCTIONALSUITABILITY

PERFORMANCEEFFICIENCY

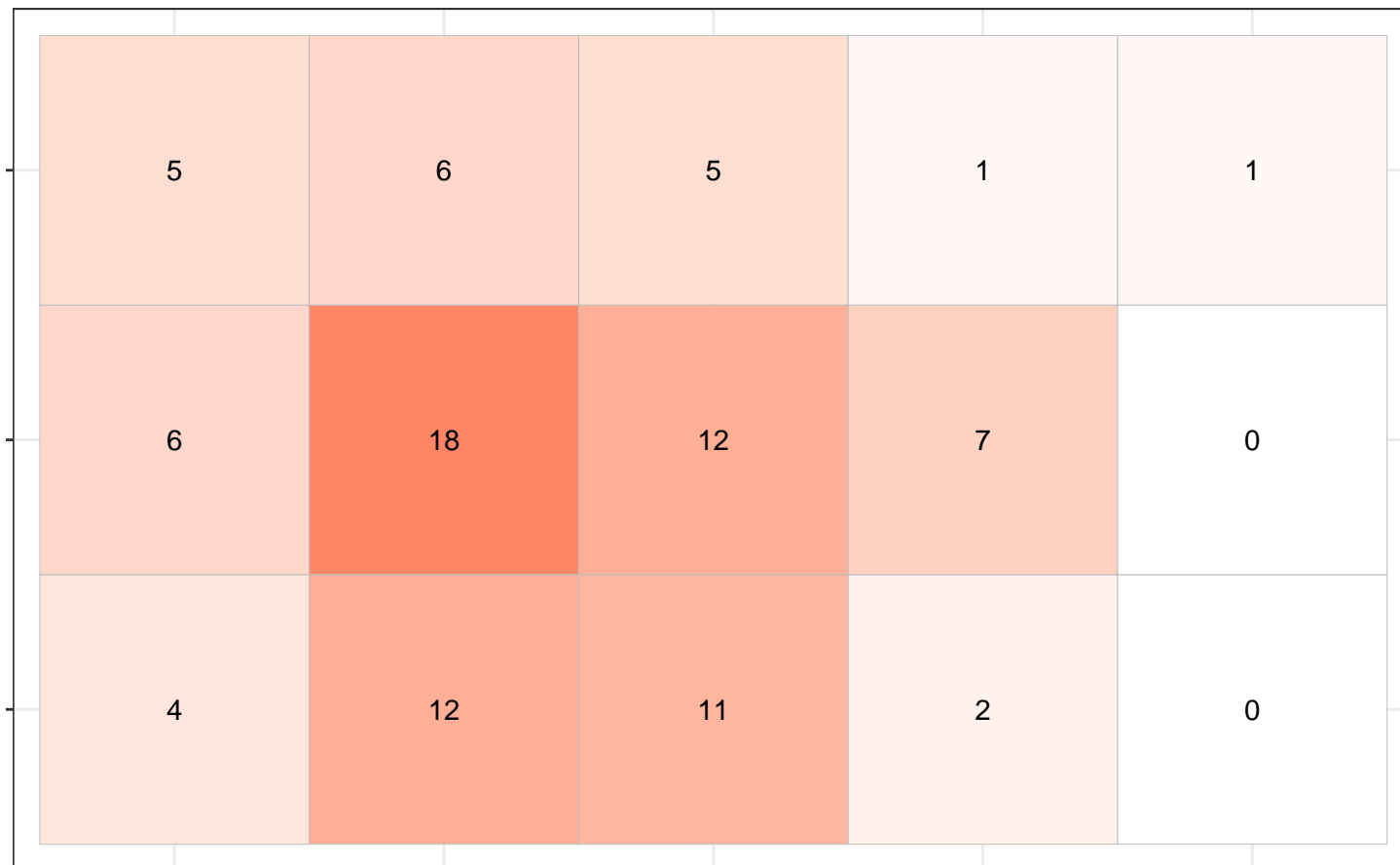
RELIABILITY

SAFETY

SECURITY

I5.QA

Frequency



I1.2.Type.of.Change_____I6.Independence

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence

Frequency



1

1

5

7

2

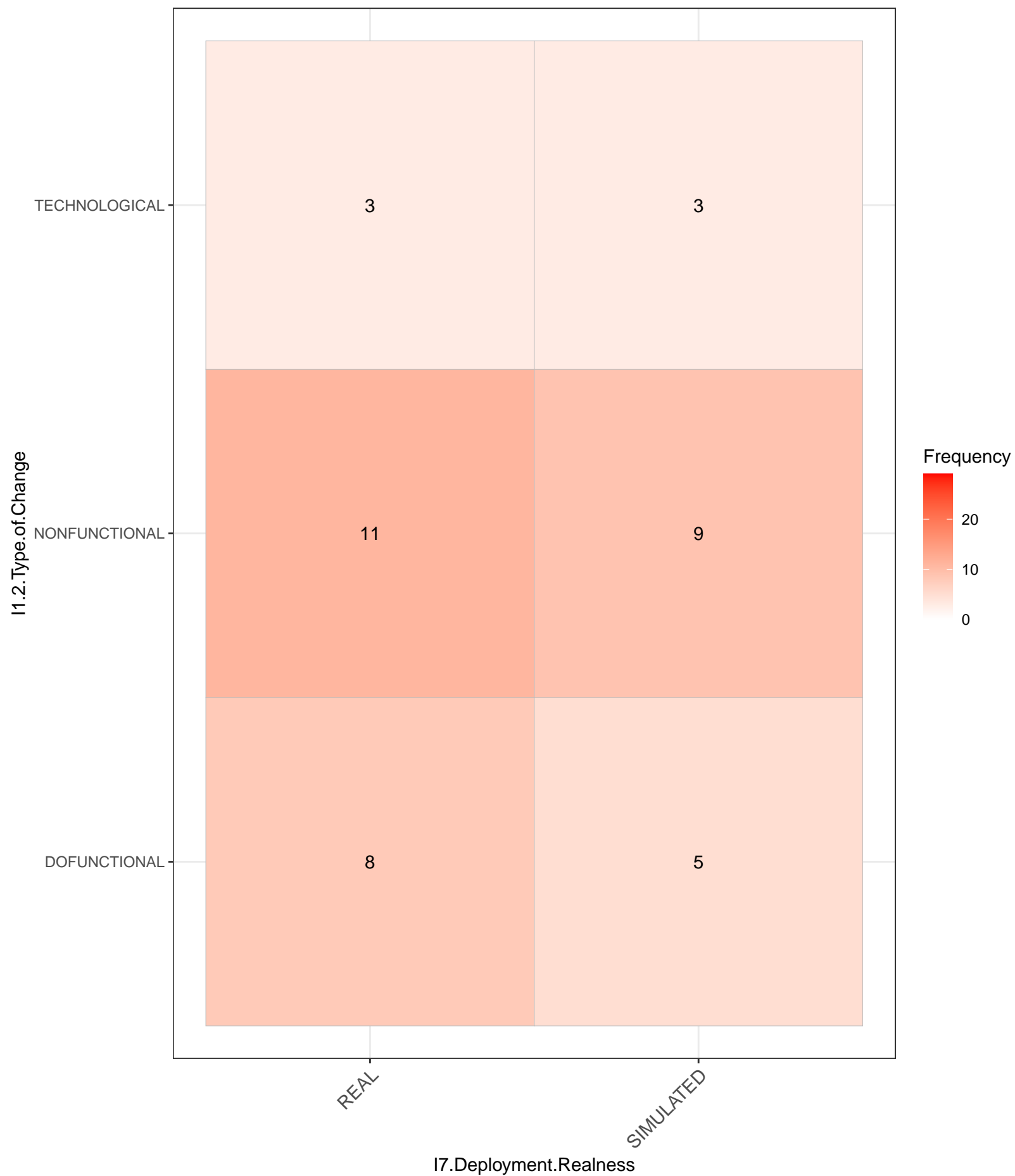
14

6

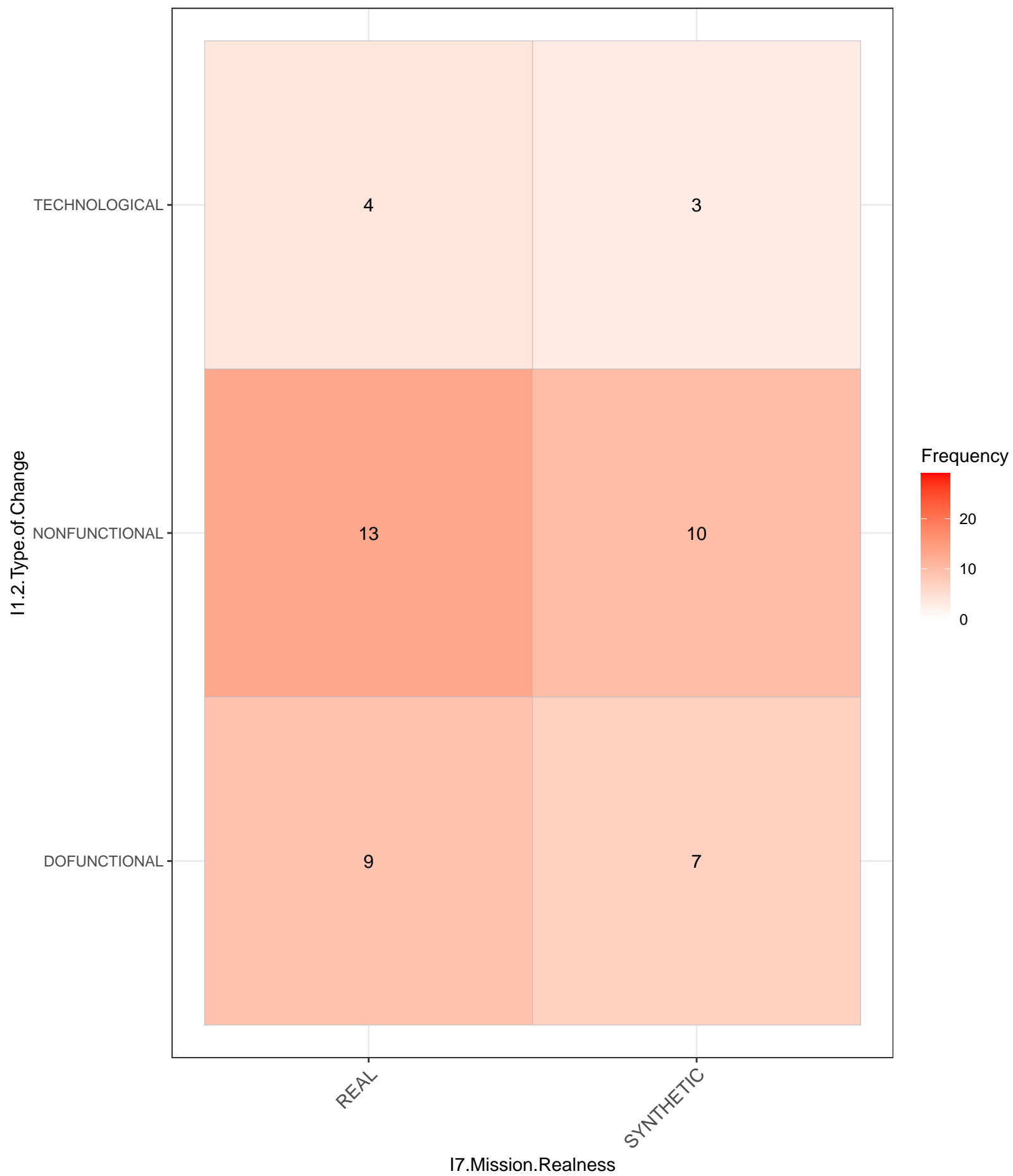
0

10

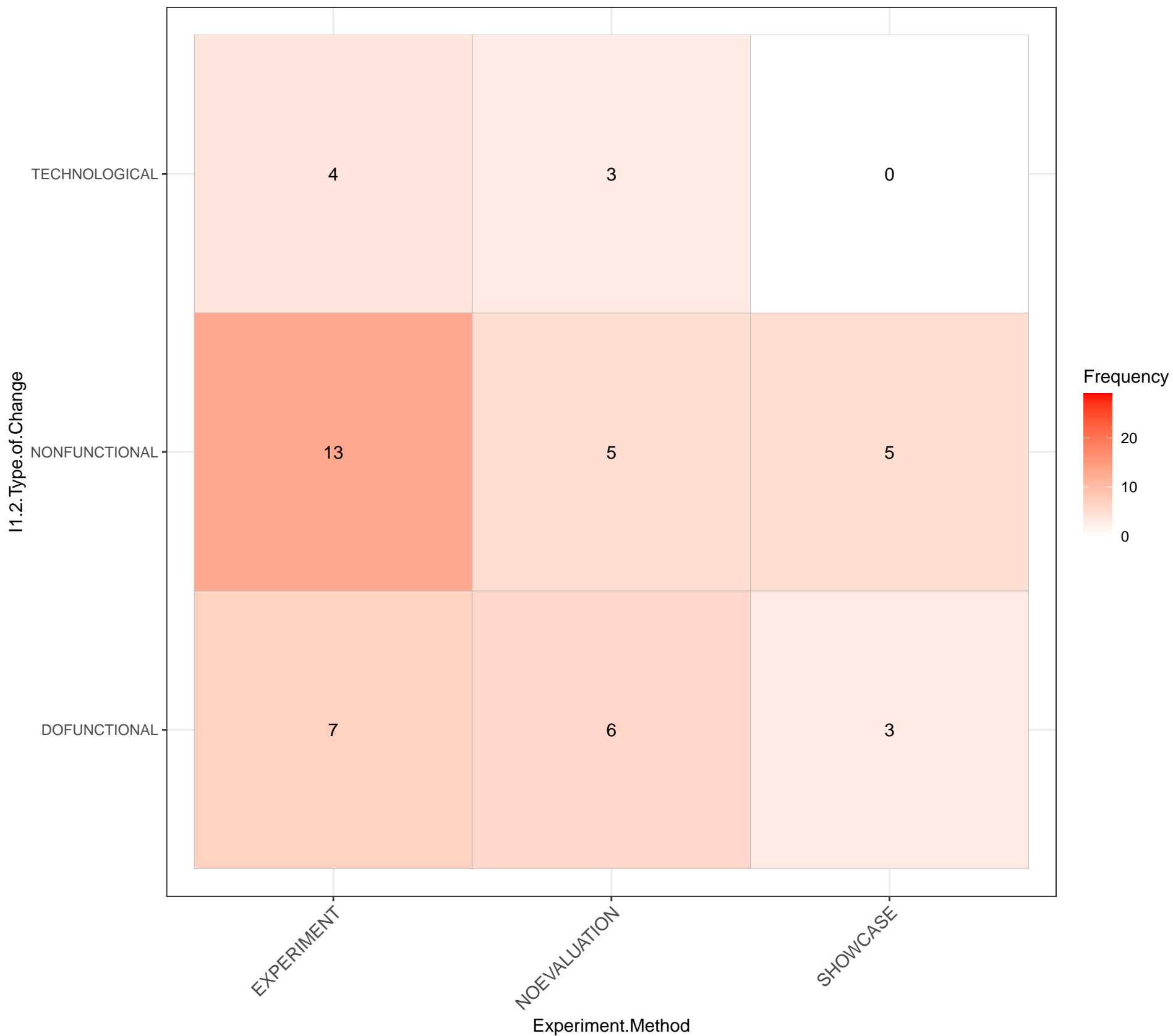
I1.2.Type.of.Change_____I7.Deployment.Realness



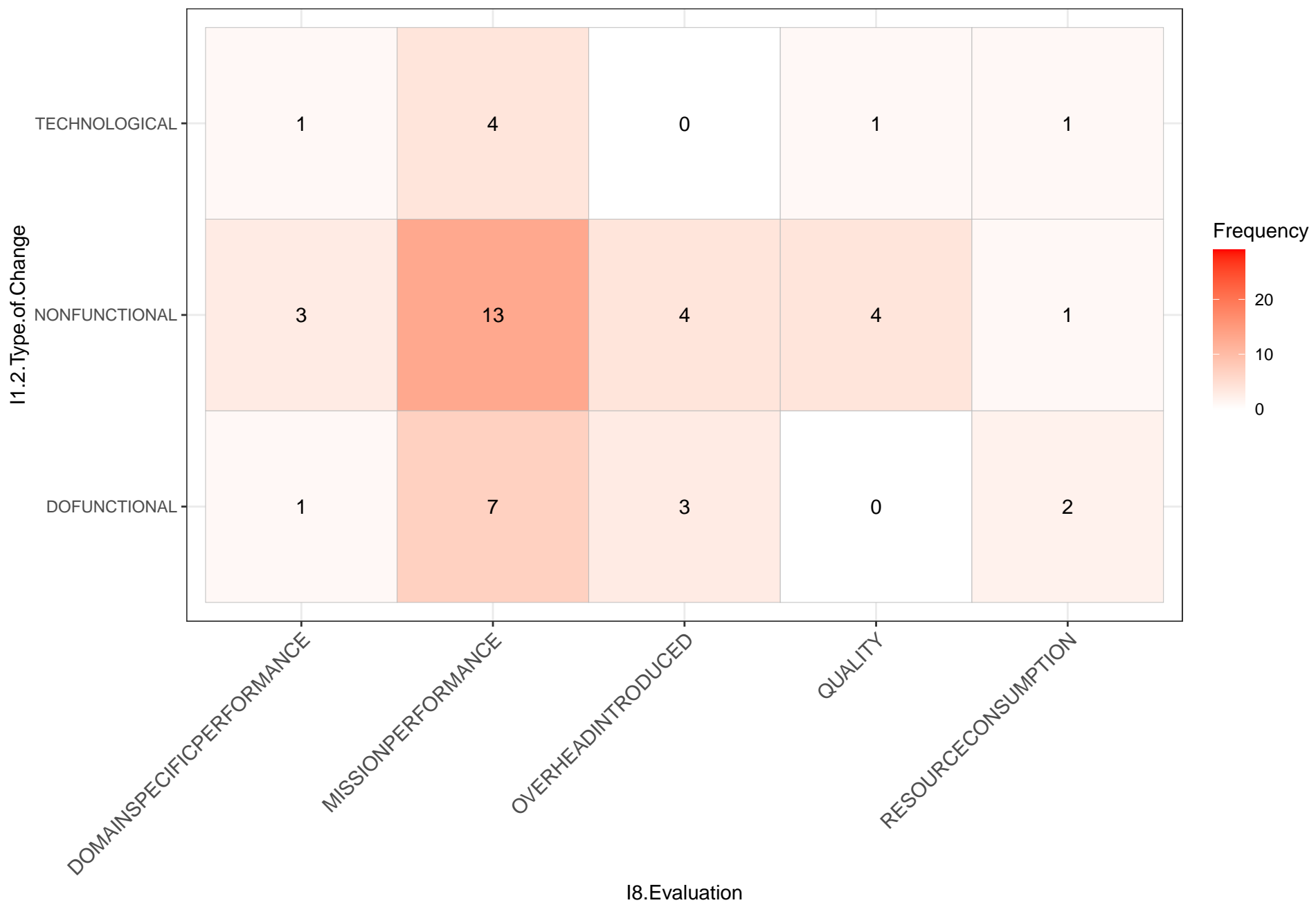
I1.2.Type.of.Change_____I7.Mission.Realness



I1.2.Type.of.Change_____Experiment.Method



I1.2.Type.of.Change_____I8.Evaluation





I1.2.Type.of.Change_____I10.Monitor

I1.2.Type.of.Change

TECHNOLOGICAL

NONFUNCTIONAL

DOFUNCTIONAL

ENVIRONMENT

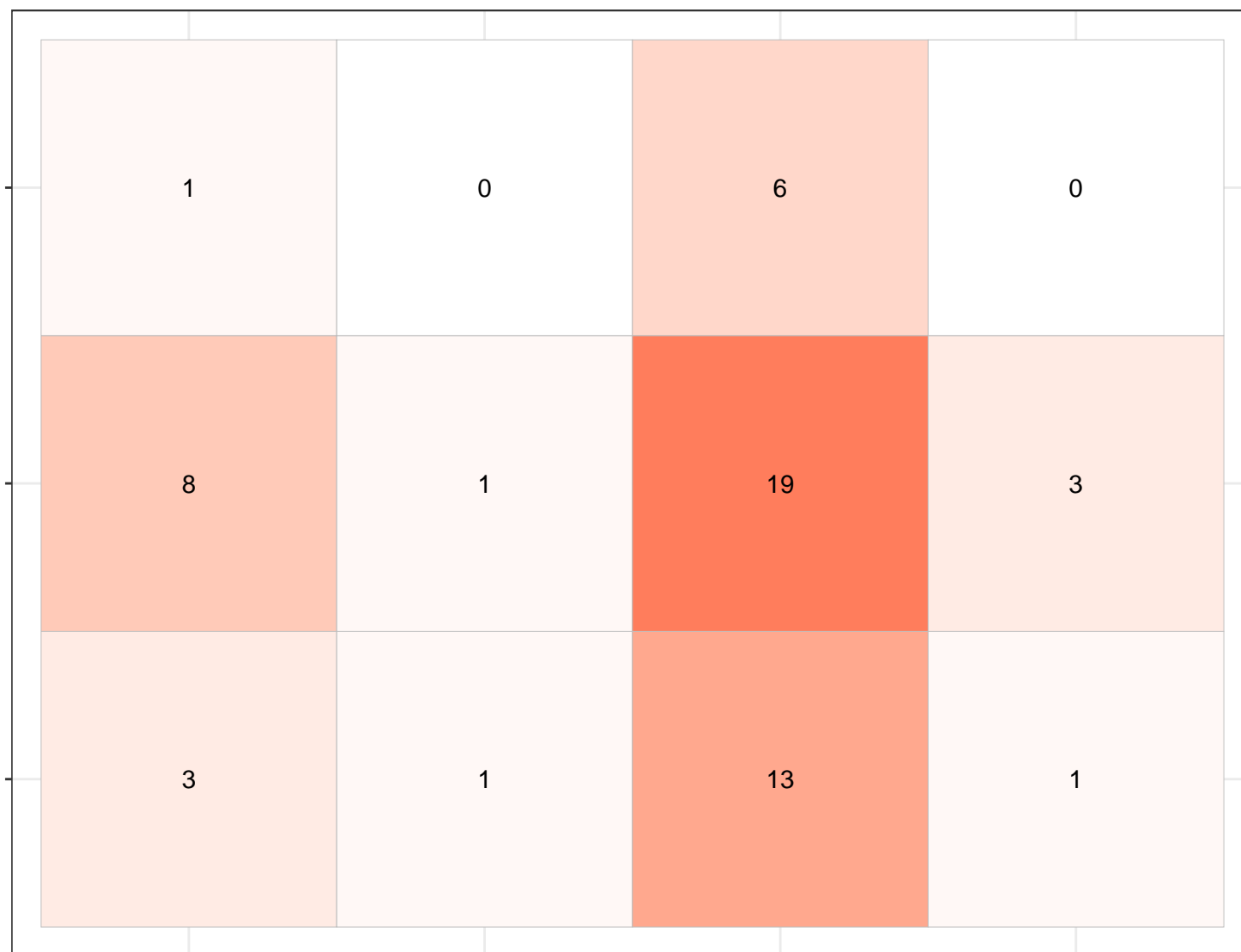
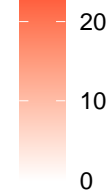
ENVIRONMENTAL

MANAGEDSYSTEM

MISSION

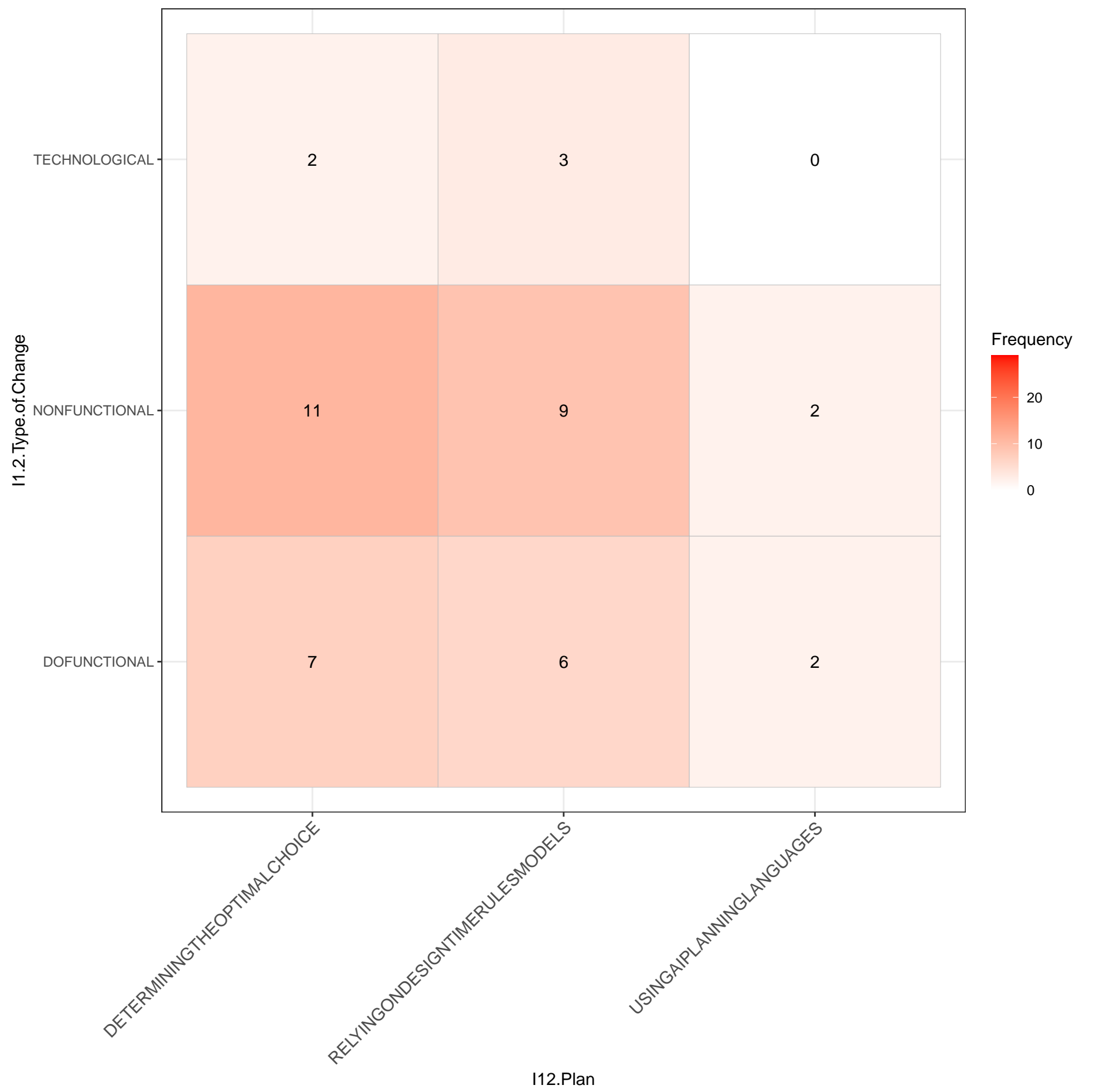
I10.Monitor

Frequency



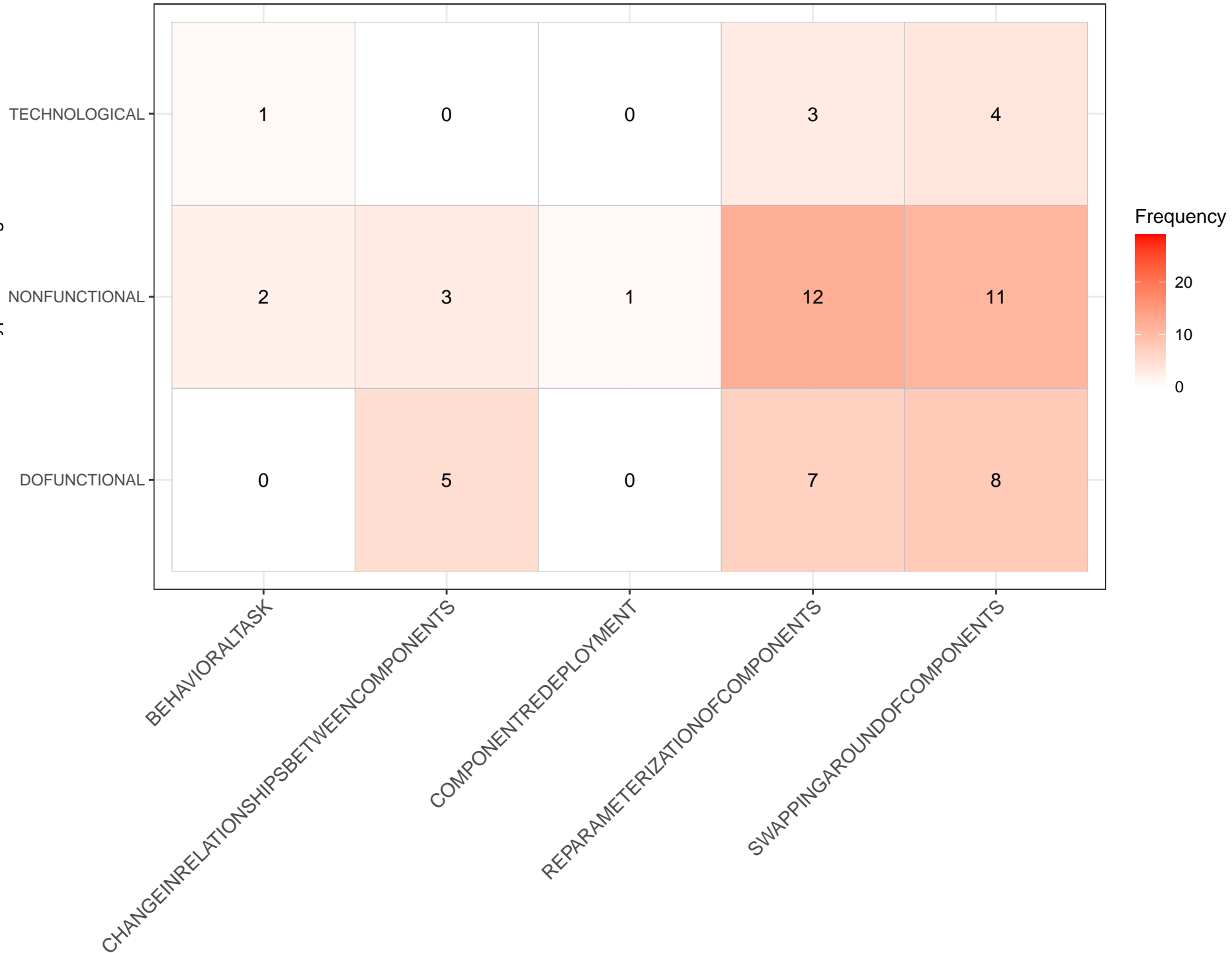


I1.2.Type.of.Change_____I12.Plan

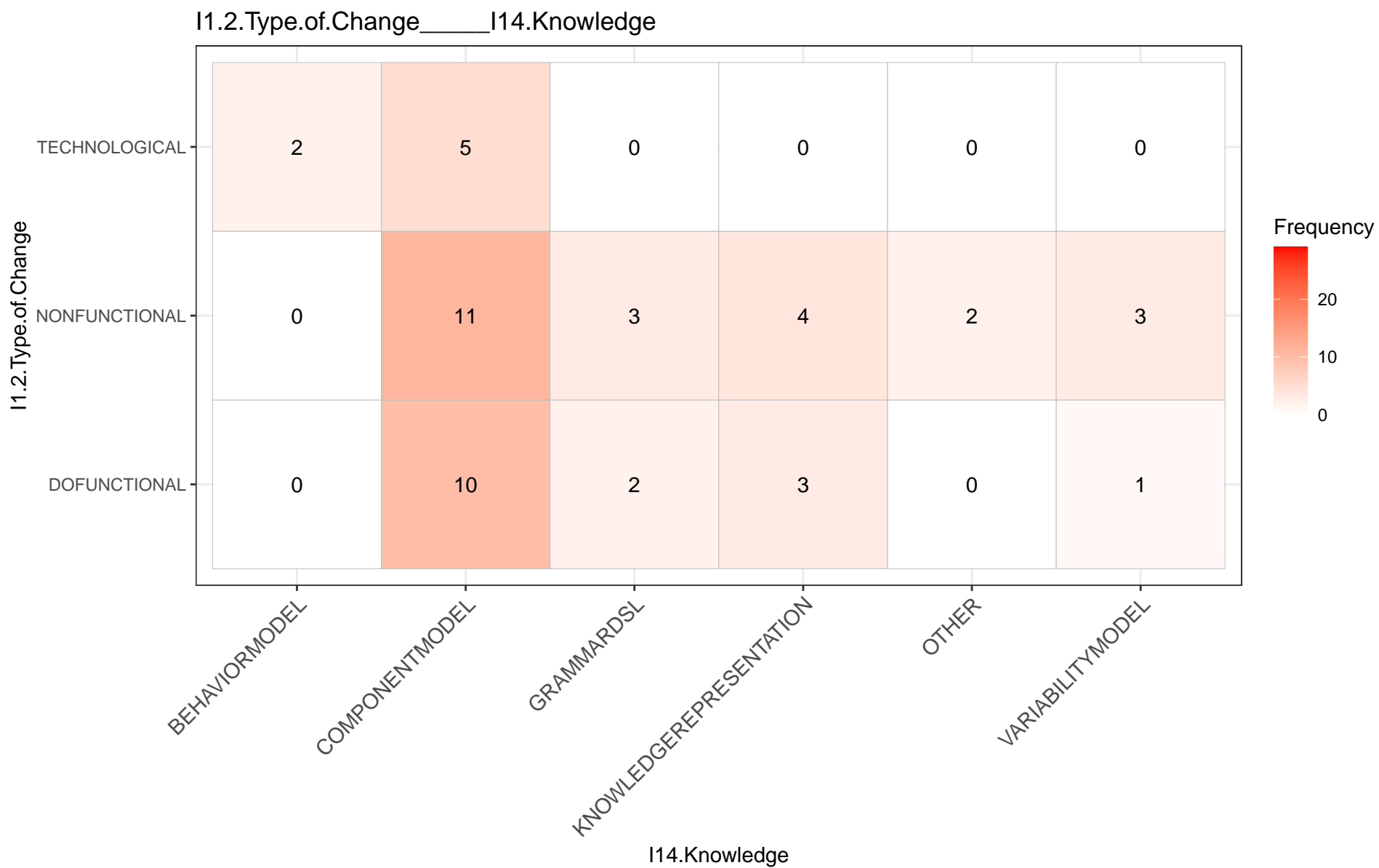


I1.2.Type.of.Change_____I13.Execute

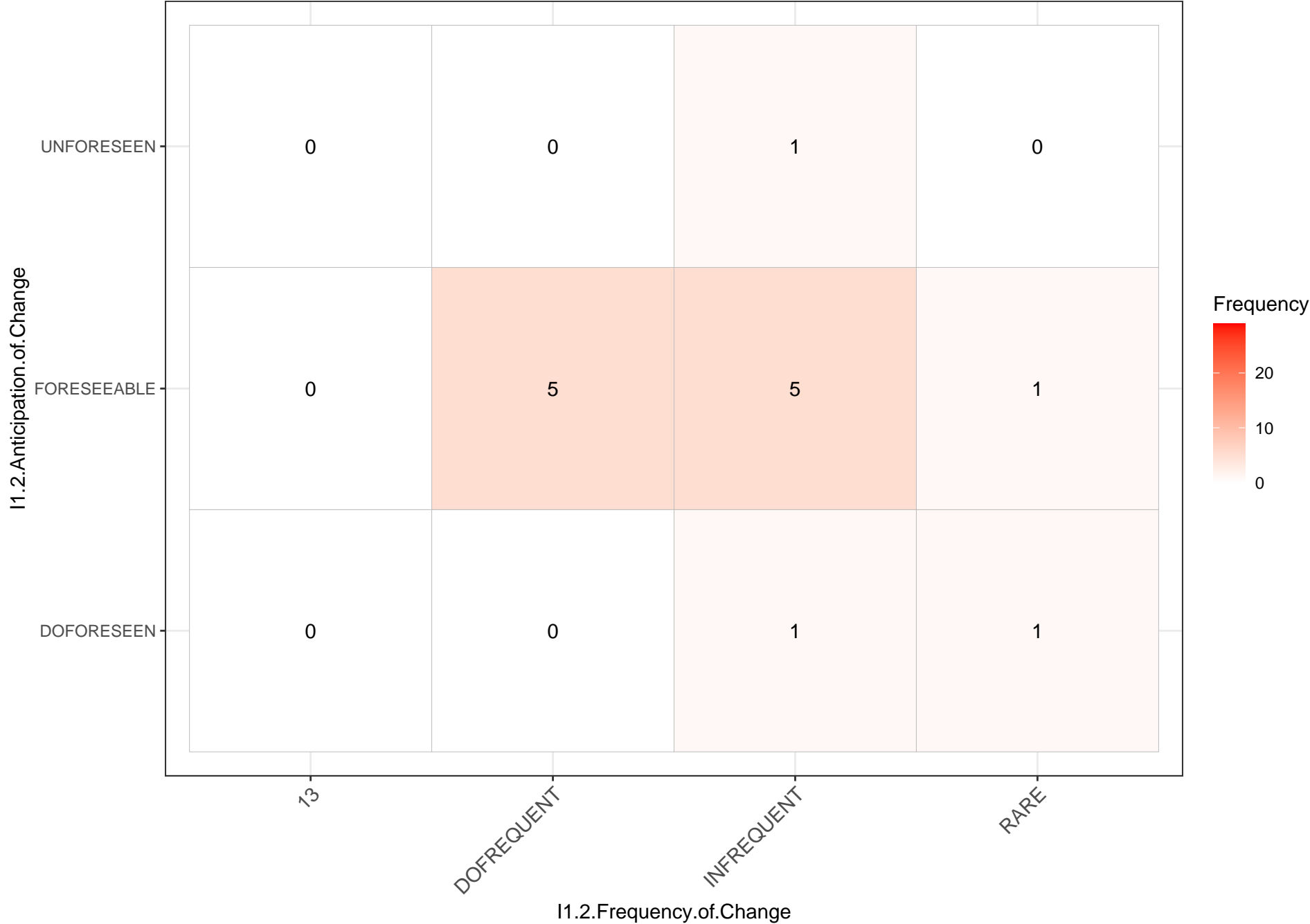
I1.2.Type.of.Change



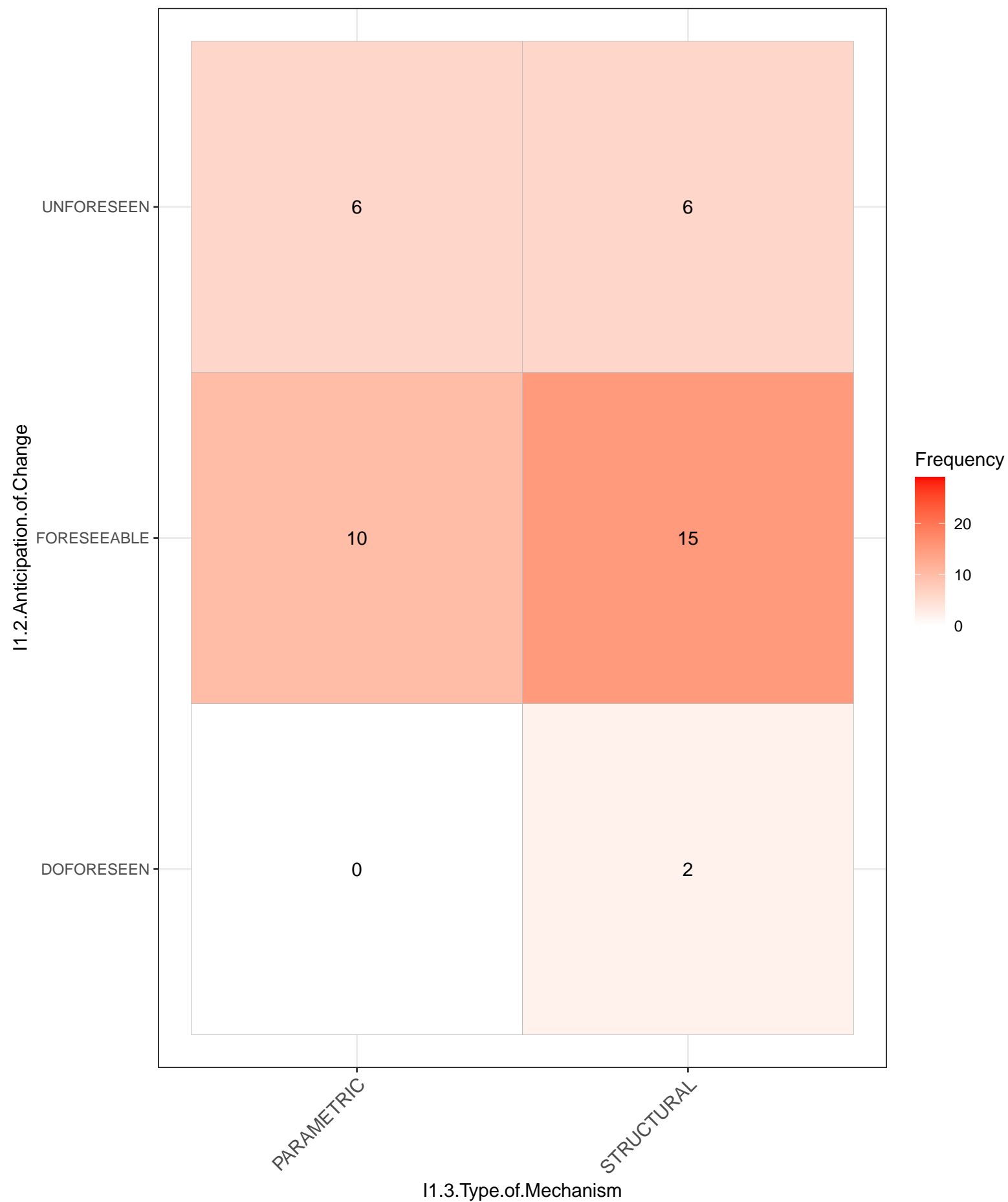
I13.Execute

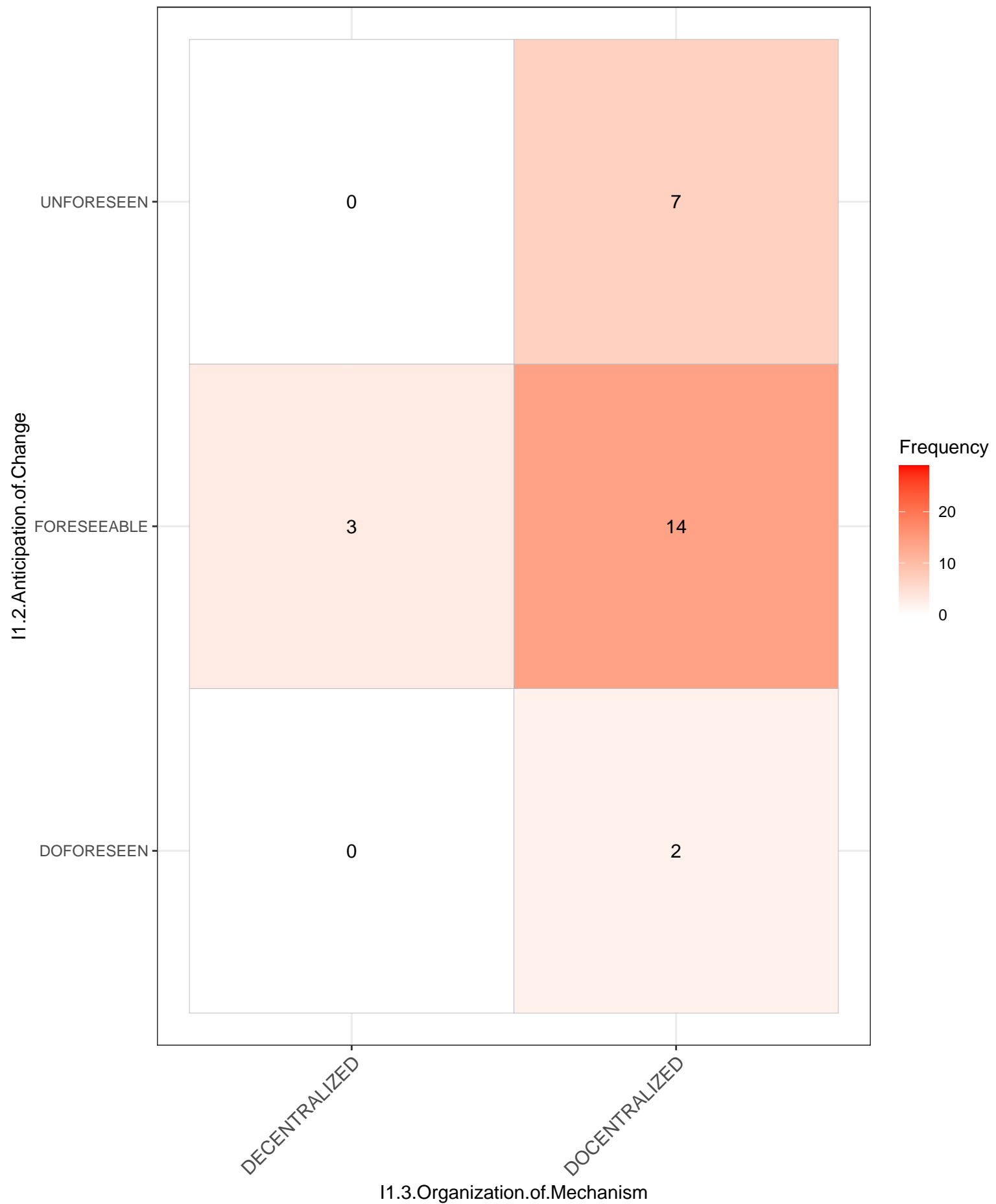


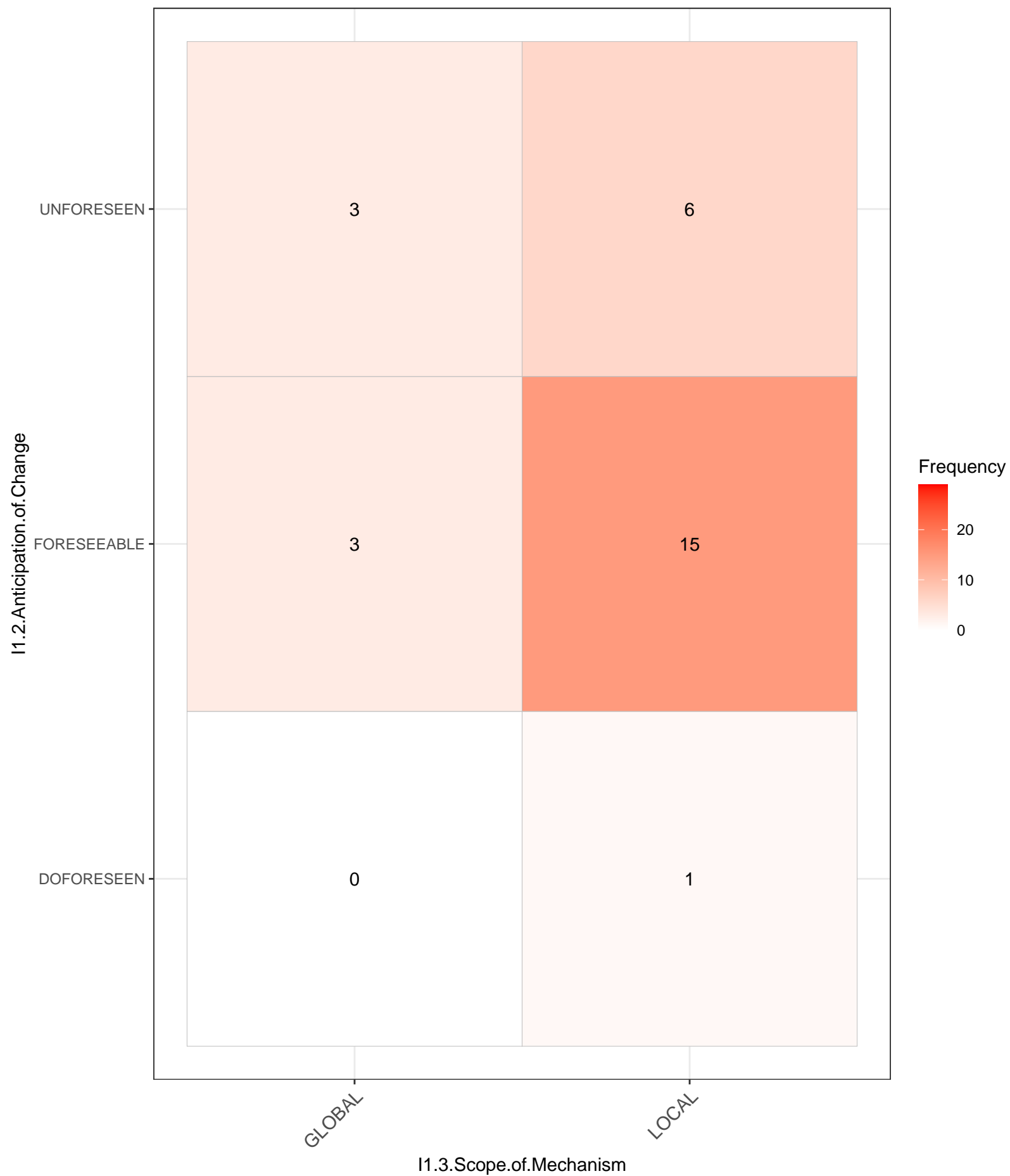
I1.2.Anticipation.of.Change_____I1.2.Frequency.of.Change



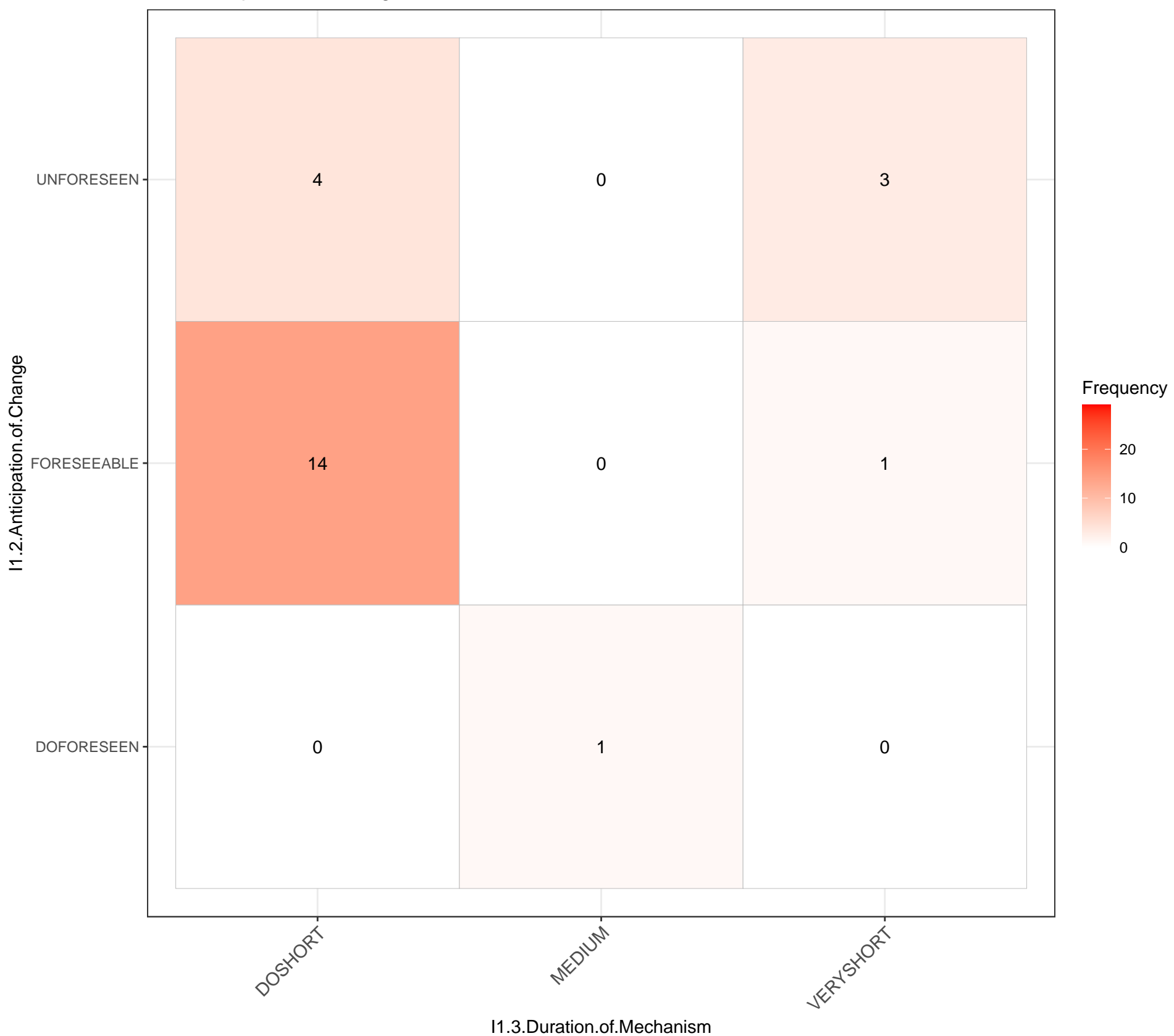
I1.2.Anticipation.of.Change_____I1.3.Type.of.Mechanism

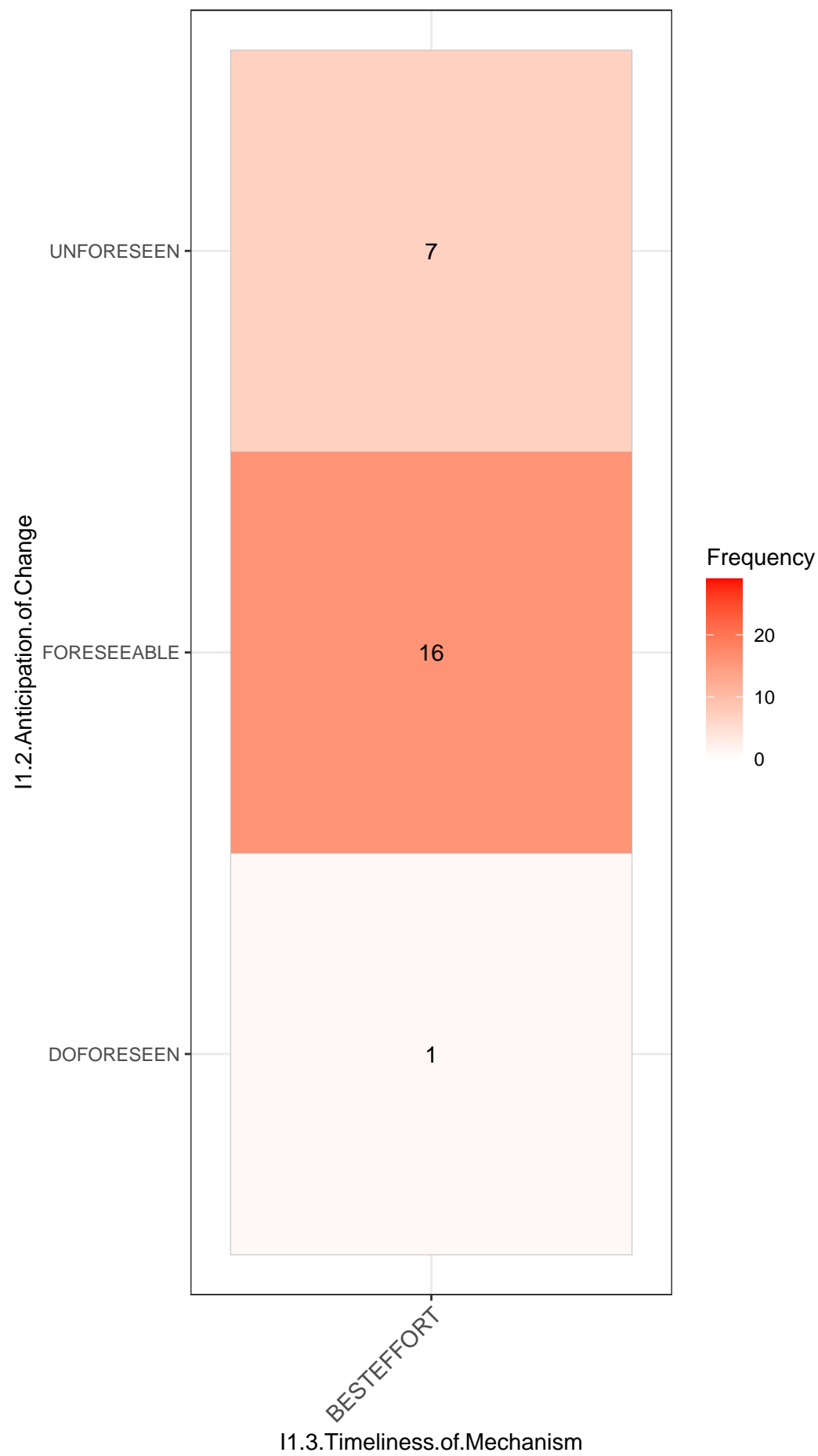






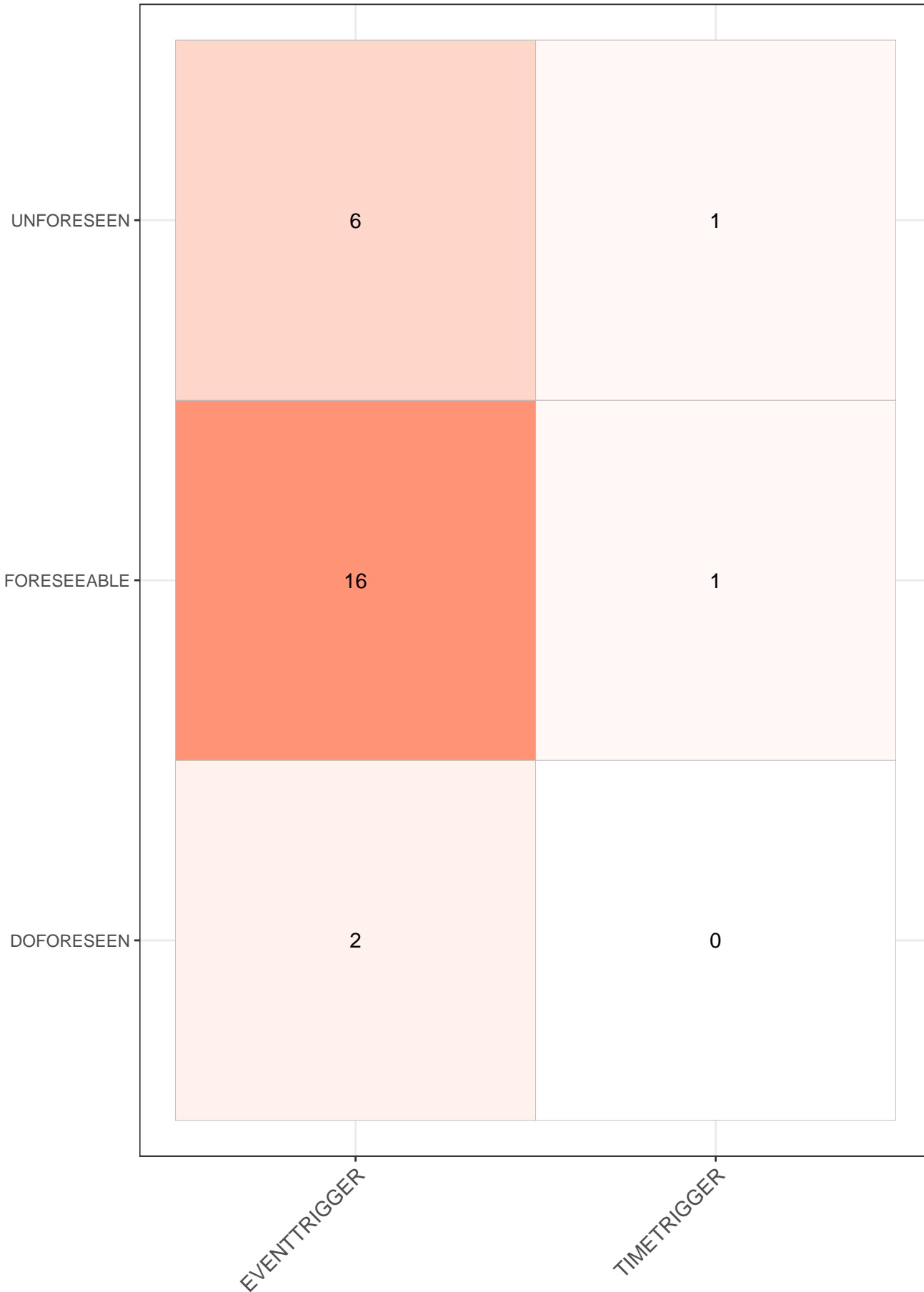
I1.2.Anticipation.of.Change_____I1.3.Duration.of.Mechanism





I1.2.Anticipation.of.Change_____I1.3.Trigger.of.Mechanism

I1.2.Anticipation.of.Change

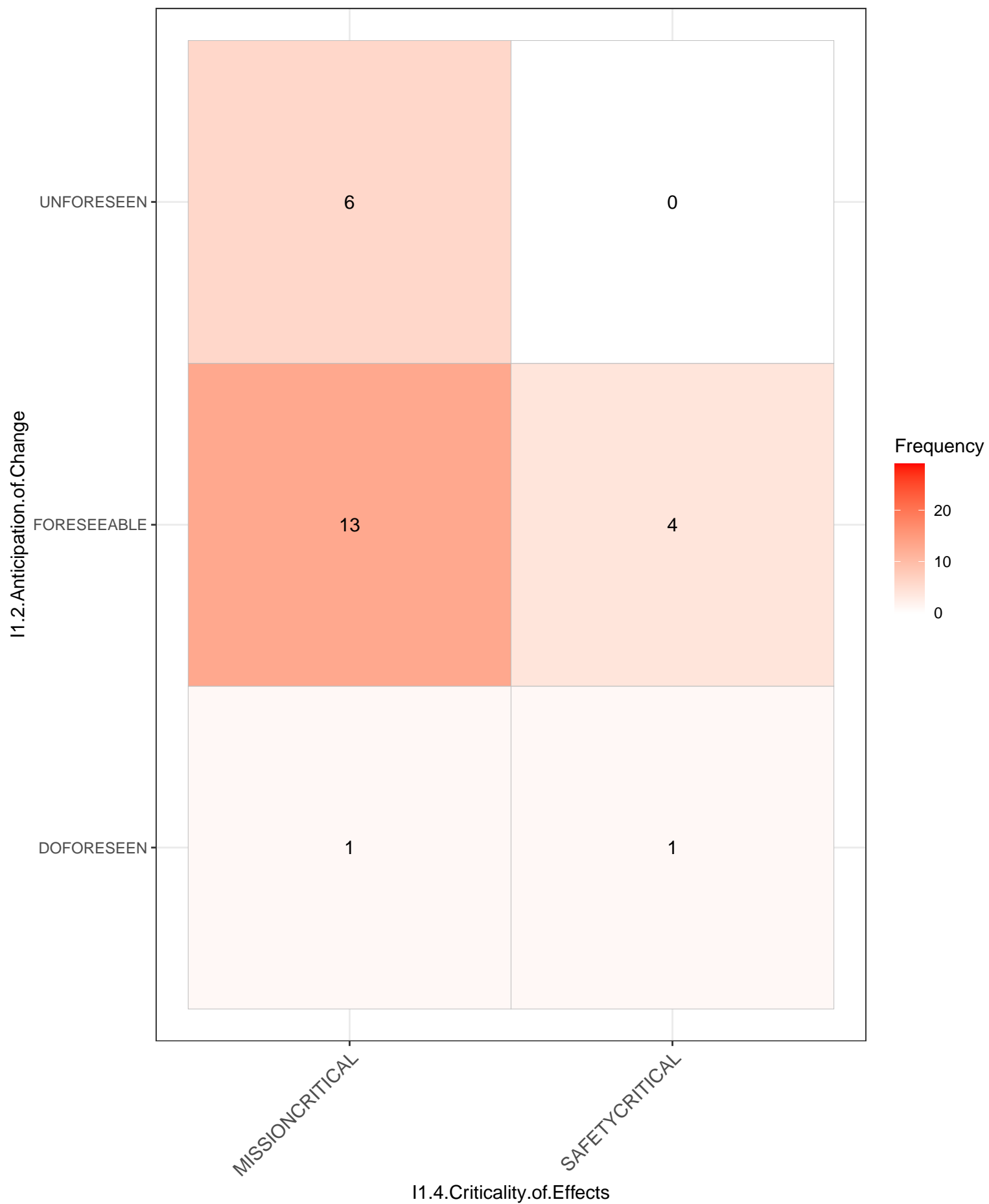


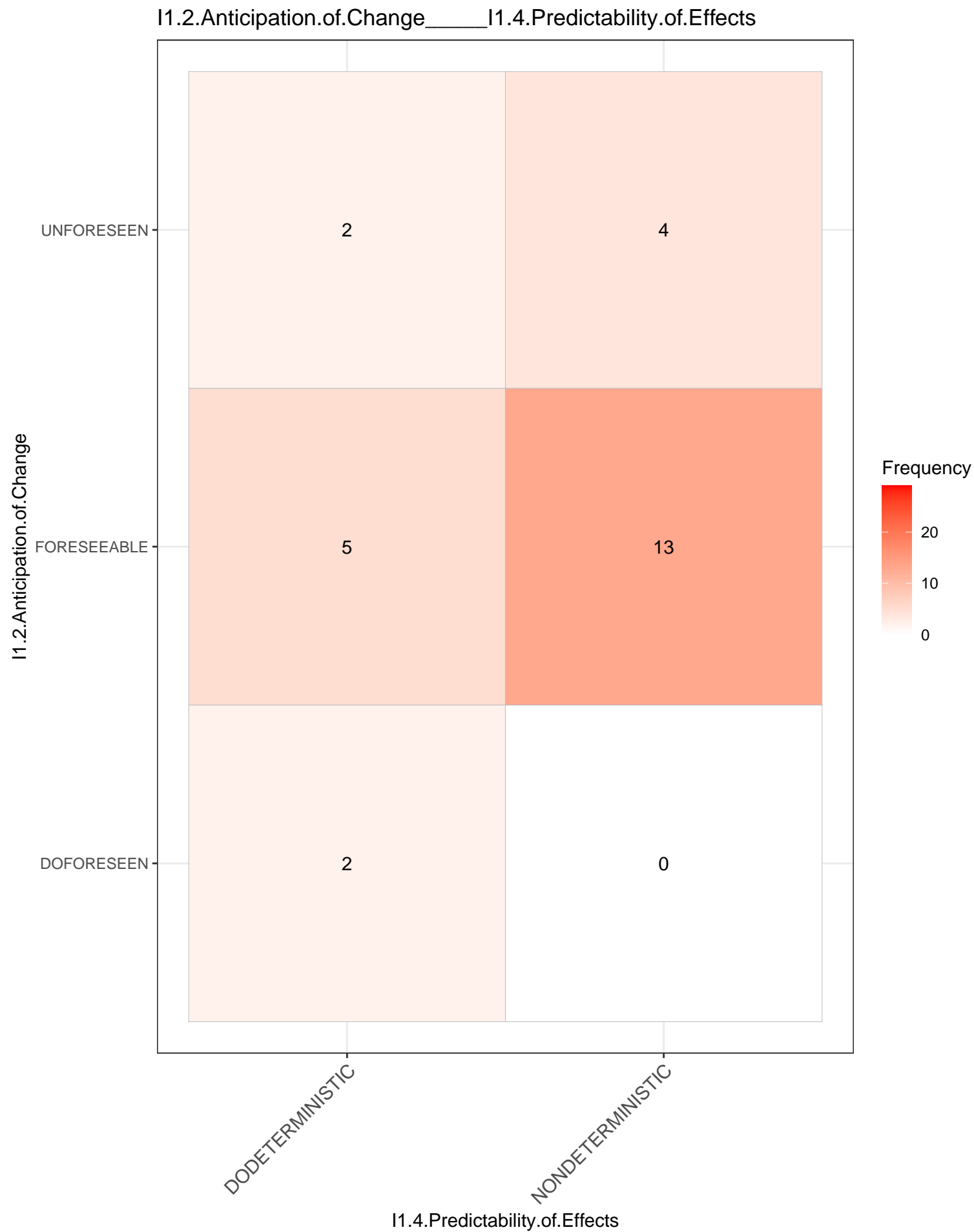
Frequency

20
10
0

I1.3.Trigger.of.Mechanism

I1.2.Anticipation.of.Change_____I1.4.Criticality.of.Effects





I1.2.Anticipation.of.Change_____I1.4.Overhead.of.Effects

I1.2.Anticipation.of.Change

UNFORESEEN

3

2

1

FORESEEABLE

10

1

2

DOFORESEEN

1

0

1

DEPENDENT

DOSIGNIFICANT

INSIGNIFICANT

I1.4.Overhead.of.Effects

Frequency

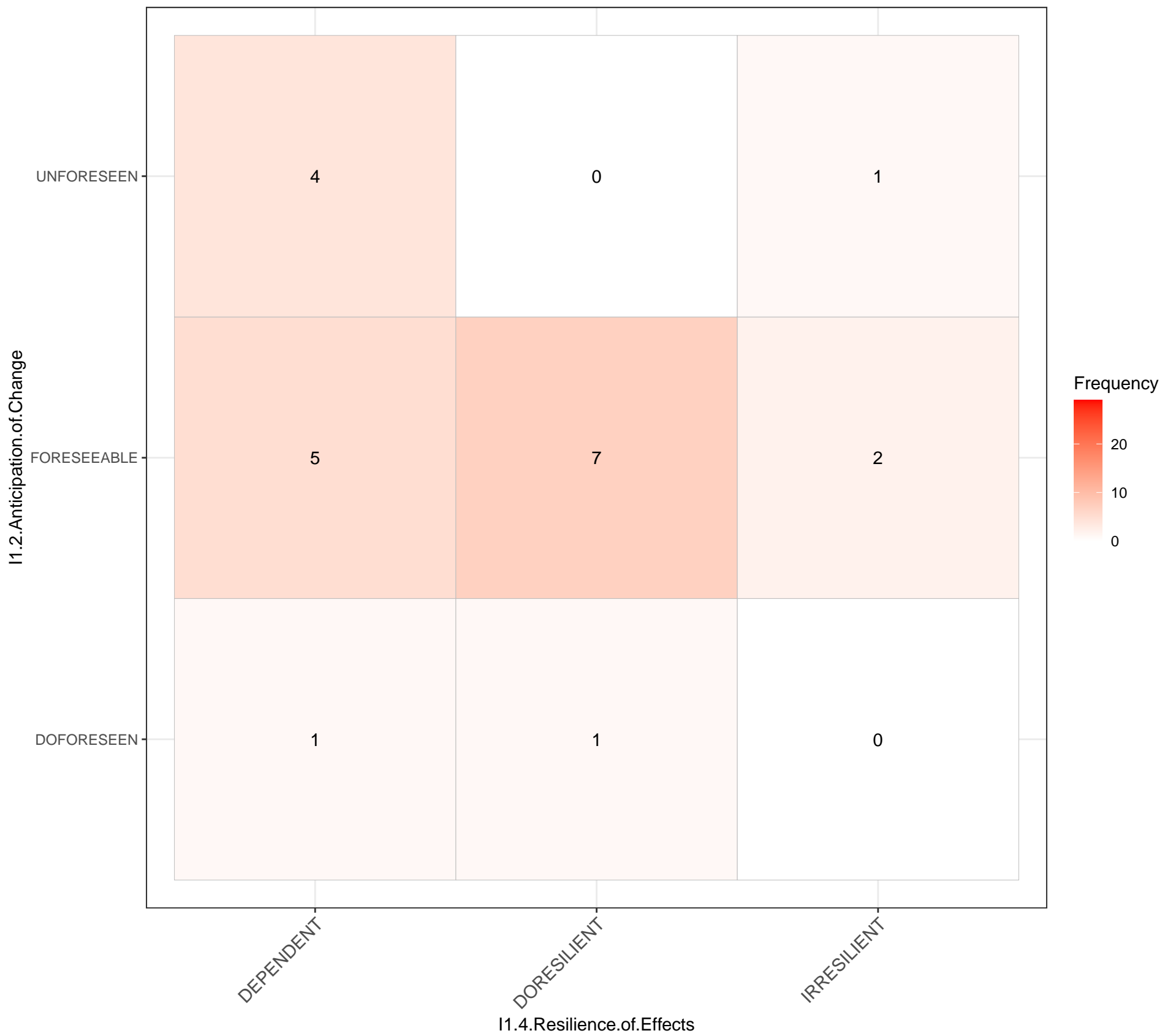


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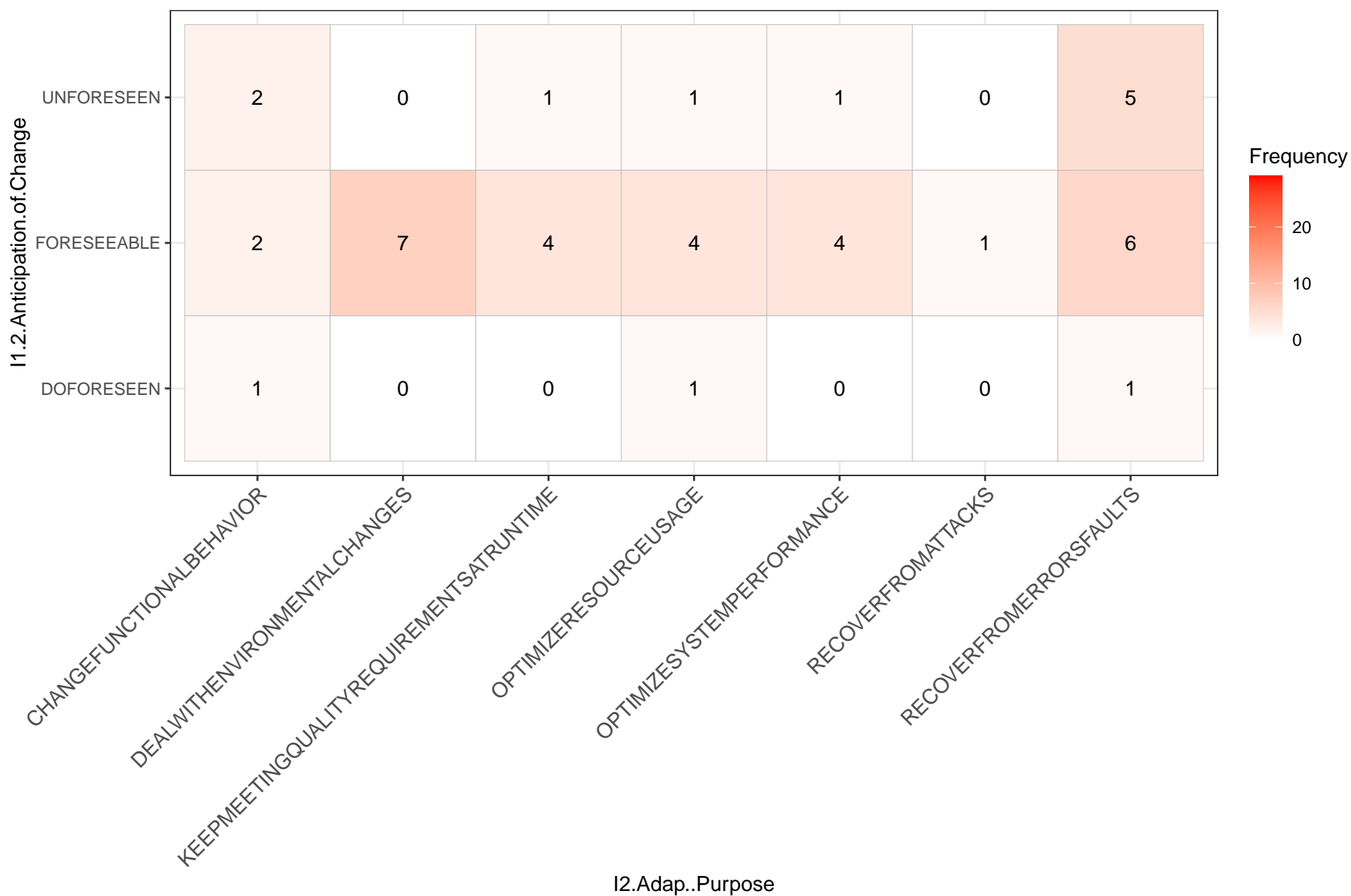
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0

I1.2.Anticipation.of.Change_____I1.4.Resilience.of.Effects



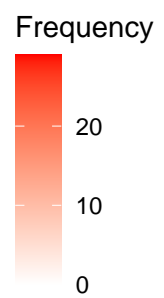
I1.2.Anticipation.of.Change_____I2.Adap..Purpose



I1.2.Anticipation.of.Change

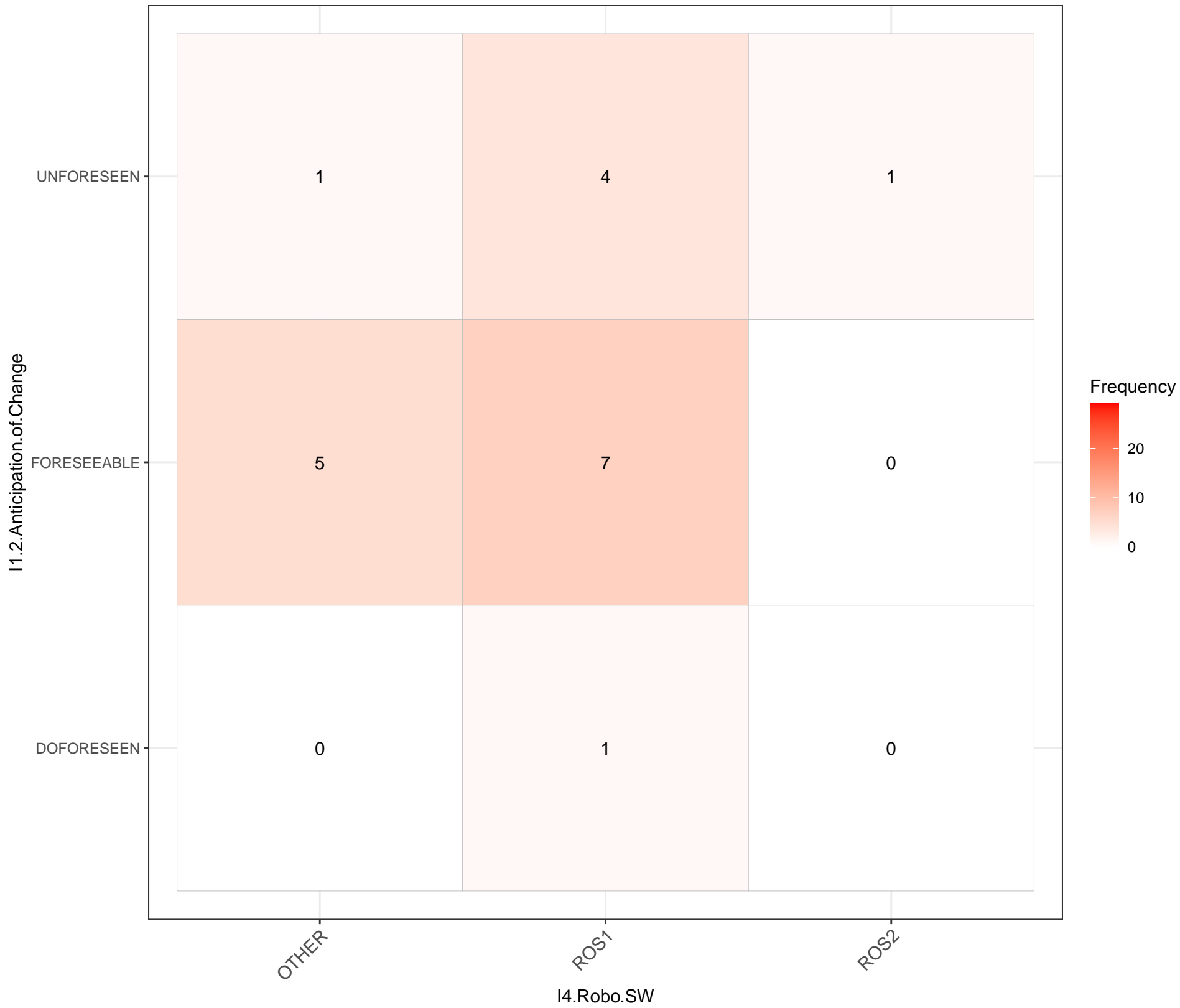
I1.2.Anticipation.of.Change_____I3.Robot.Type

UNFORESEEN	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	0	1	0	1	0	1	0	
FORESEEABLE	1	0	1	2	1	2	0	1	1	1	1	0	1	1	0	0	0	1	0	1	0	1	2	1	0	1
DOFORESEEN	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
BOXERCLEARPATH																										
CRAWLERTERMINATORBOT																										
FIELDMOBILEROBOTS																										
HETEROGENOUSROBOTS																										
HEXAII																										
HEXMANIPULATOR																										
MOBILESERVICEROBOT																										
IROBOTCREATE2																										
MOBILEROBOTMANIPULATOR																										
MOBILEROBOTS																										
MOBILBOTTERRESTRIAL																										
MOBILEROBOTTIAGO																										
MOBILESERVICEROBOT																										
MSUEVORALLYMOBILETERRESTRIAL																										
MULTIPLEHEXROTOR																										
NAOROBOT																										
PIONEER3DX																										
QUADROCOPTER																										
RESCUE																										
SINGLESERVINGROTATIONROBOT																										
TEDUSARTERRESTRIALSEARCH																										
TRIGLIDEINDUSTRIALASSEMBLY																										
TURTLEBOT																										
WAREHOUSEDELIVERYROBOT																										
WHICHISANINDUSTRIALAGV																										
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION																										

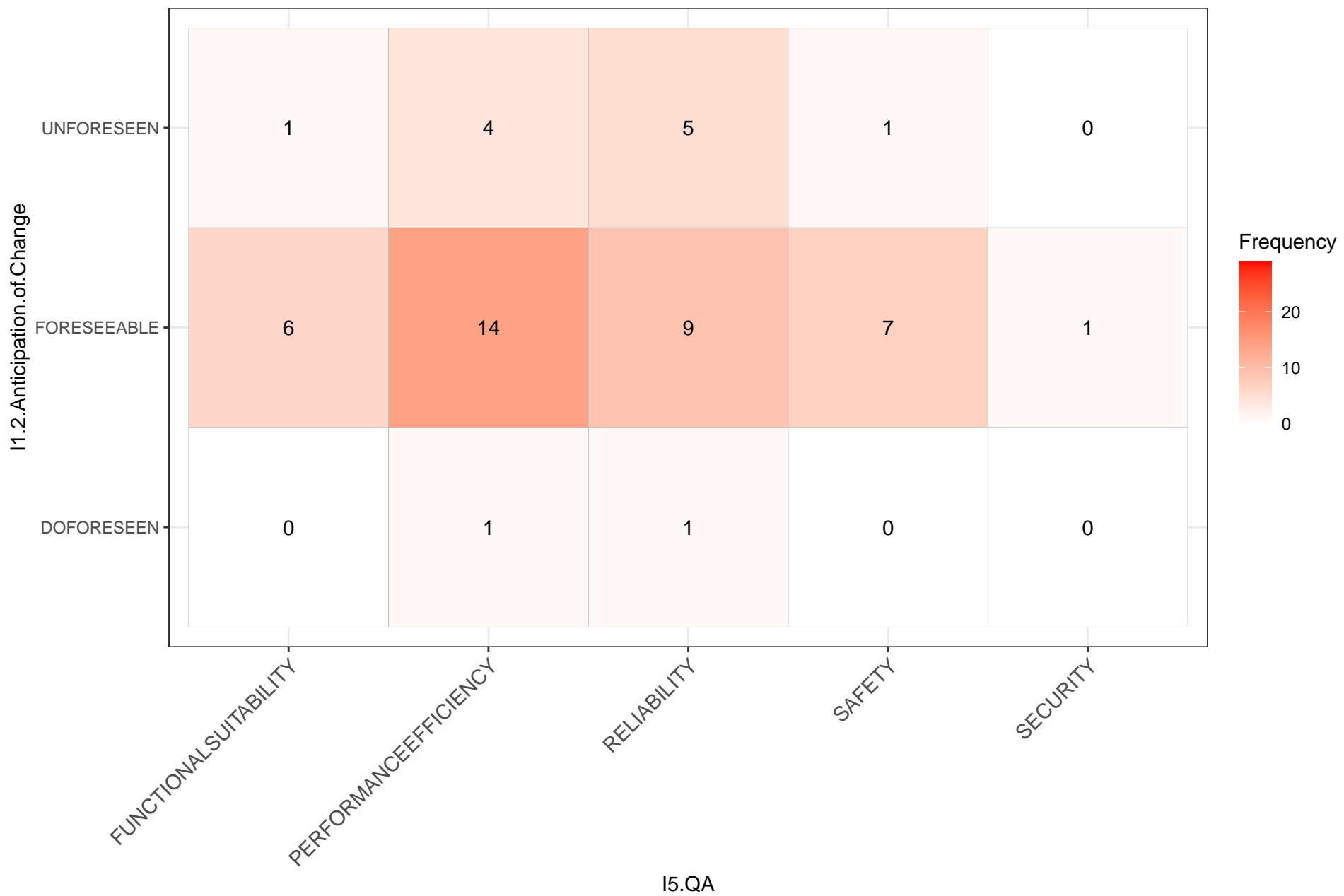


I3.Robot.Type

I1.2.Anticipation.of.Change_____I4.Robo.SW



I1.2.Anticipation.of.Change_____I5.QA



I1.2.Anticipation.of.Change_____I6.Independence

I1.2.Anticipation.of.Change

UNFORESEEN

3

0

4

FORESEEABLE

4

2

11

DOFORESEEN

1

0

1

DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence

Frequency

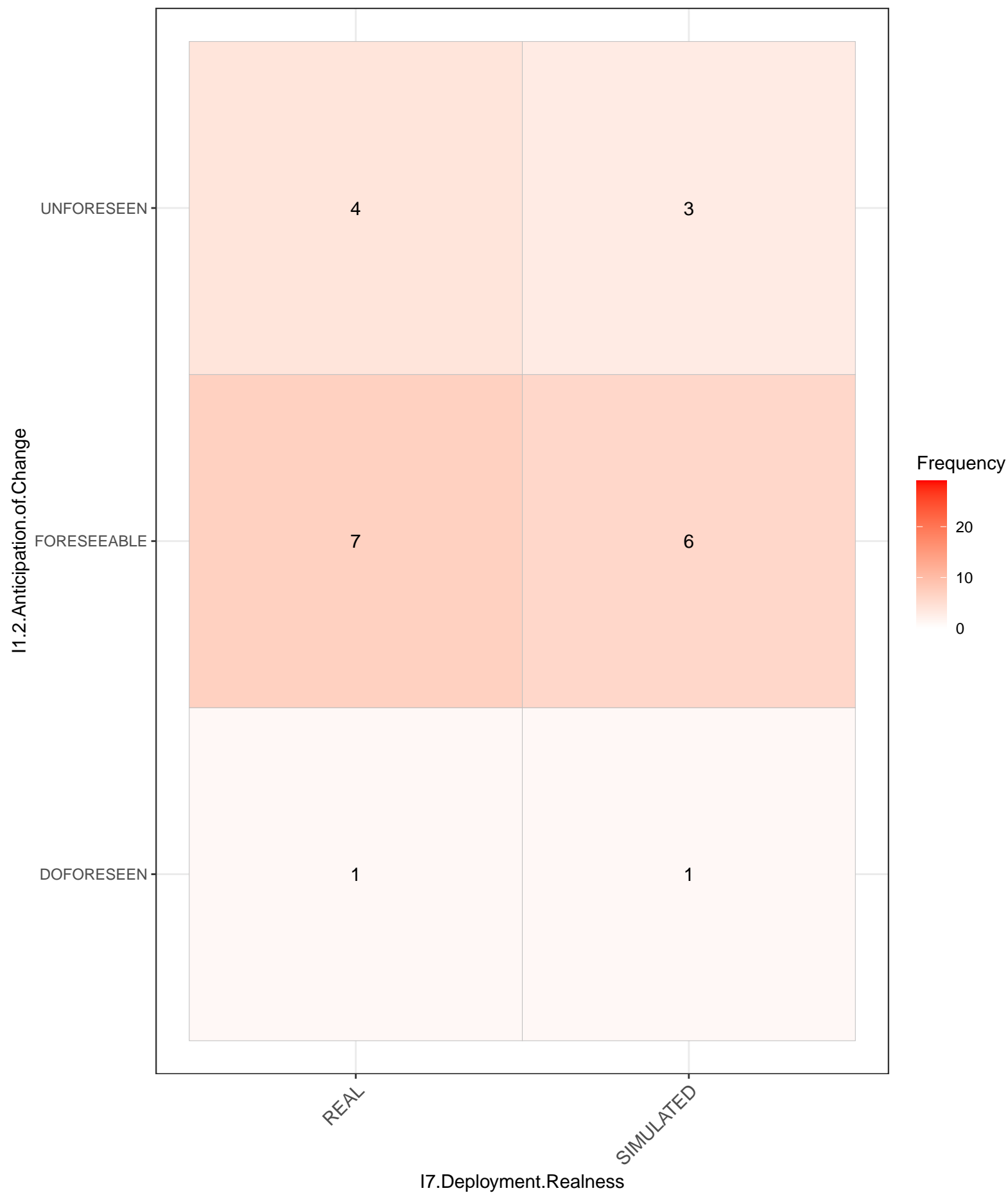


20

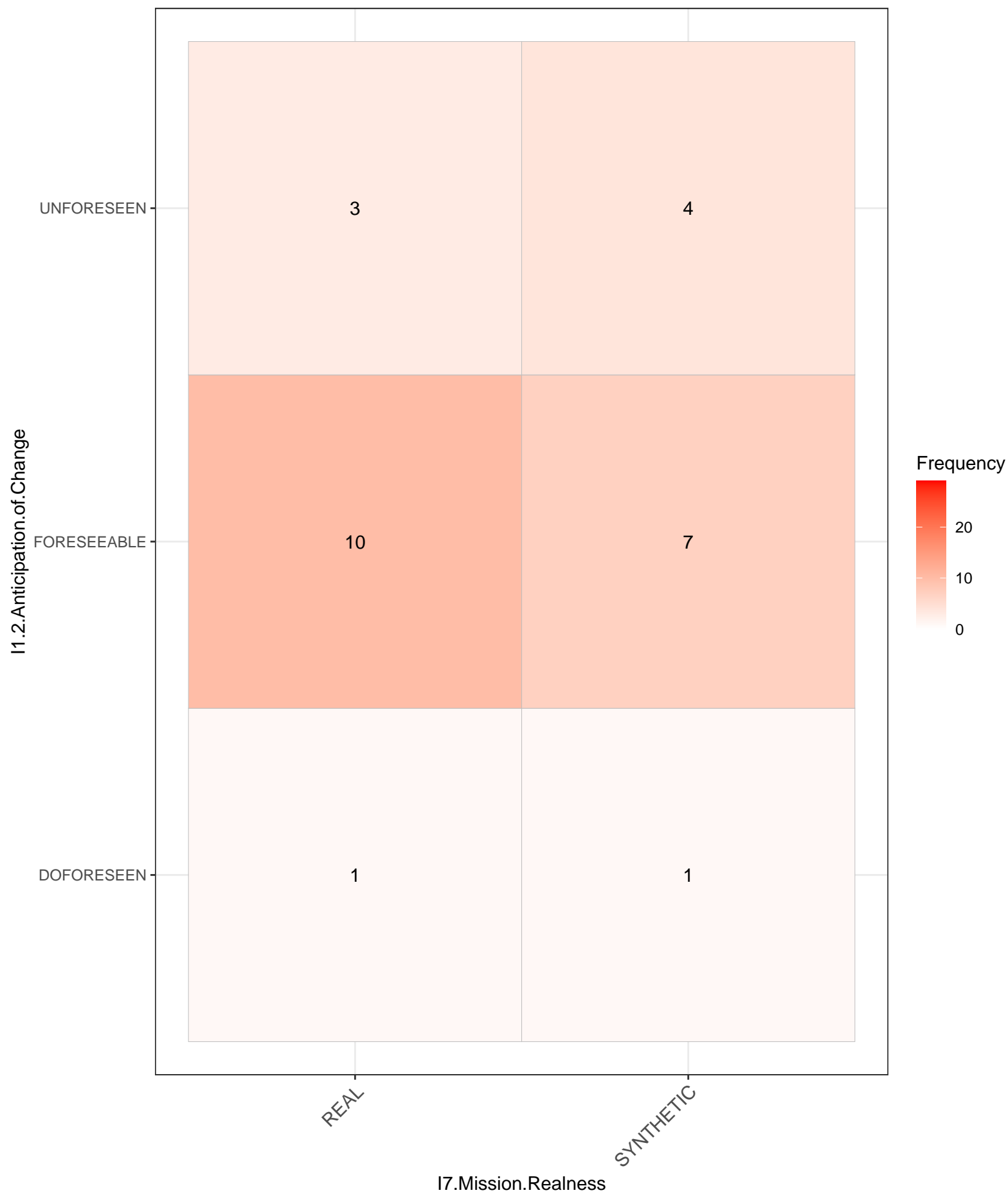
10

0

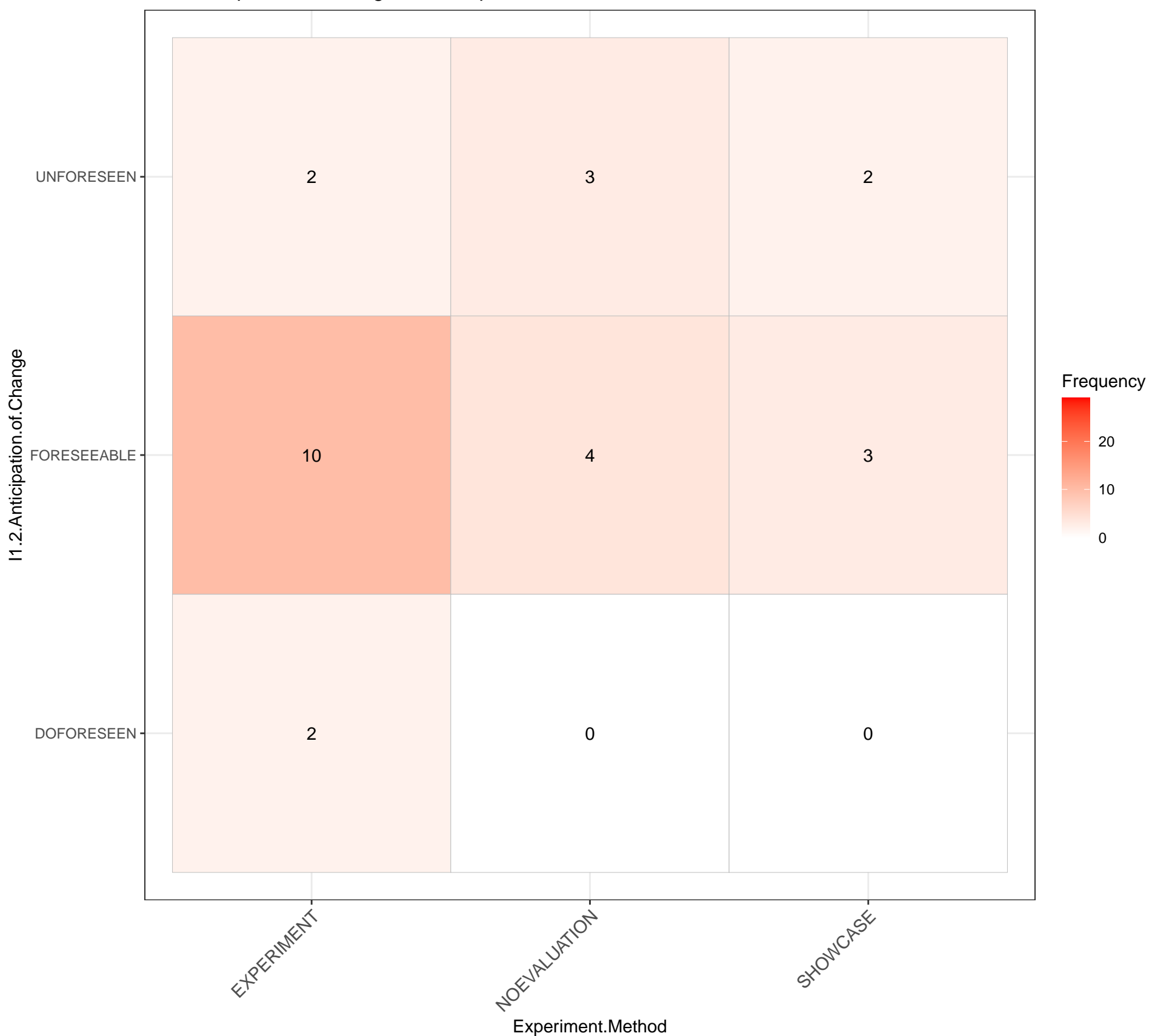
I1.2.Anticipation.of.Change_____I7.Deployment.Realness



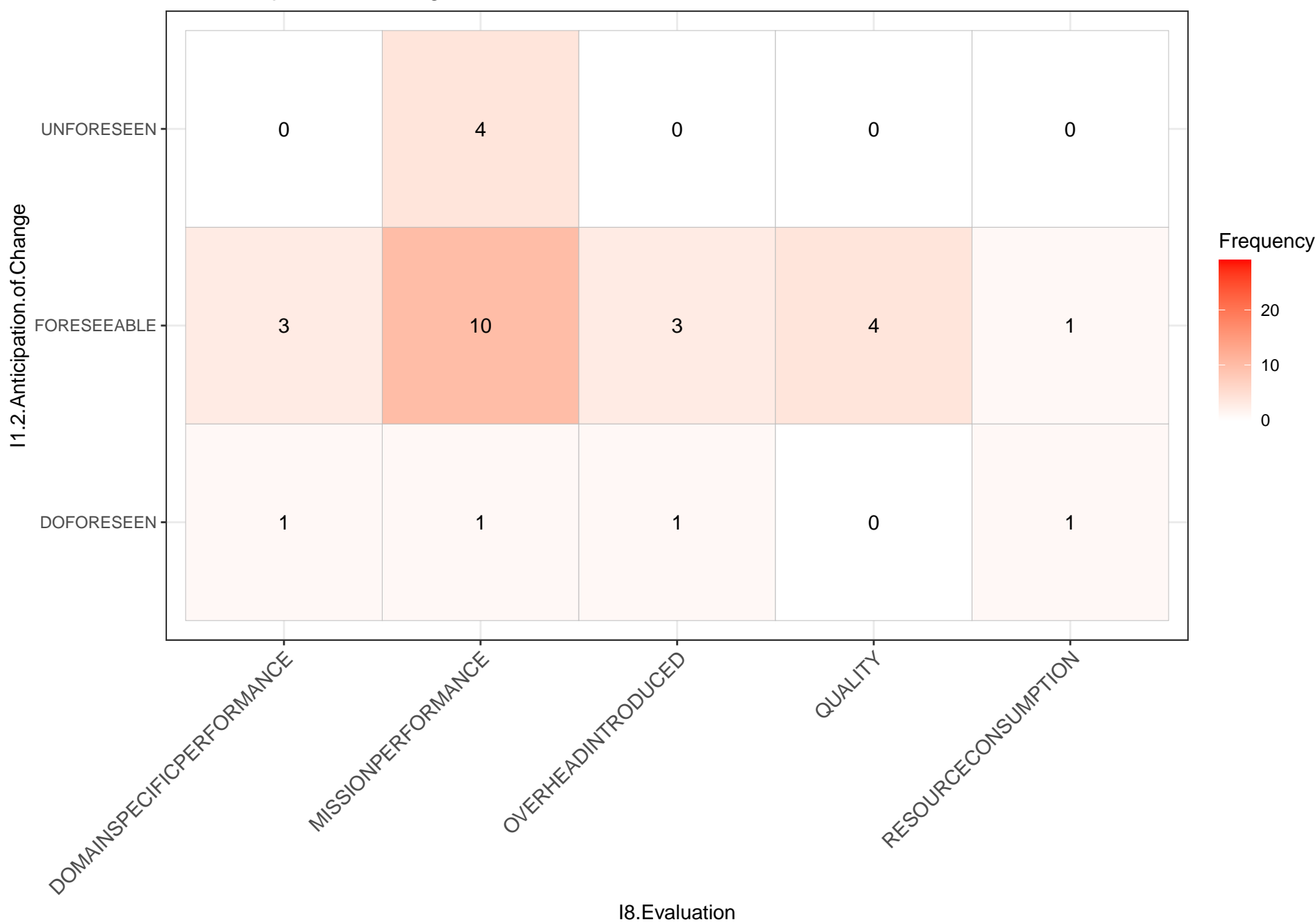
I1.2.Anticipation.of.Change_____I7.Mission.Realness

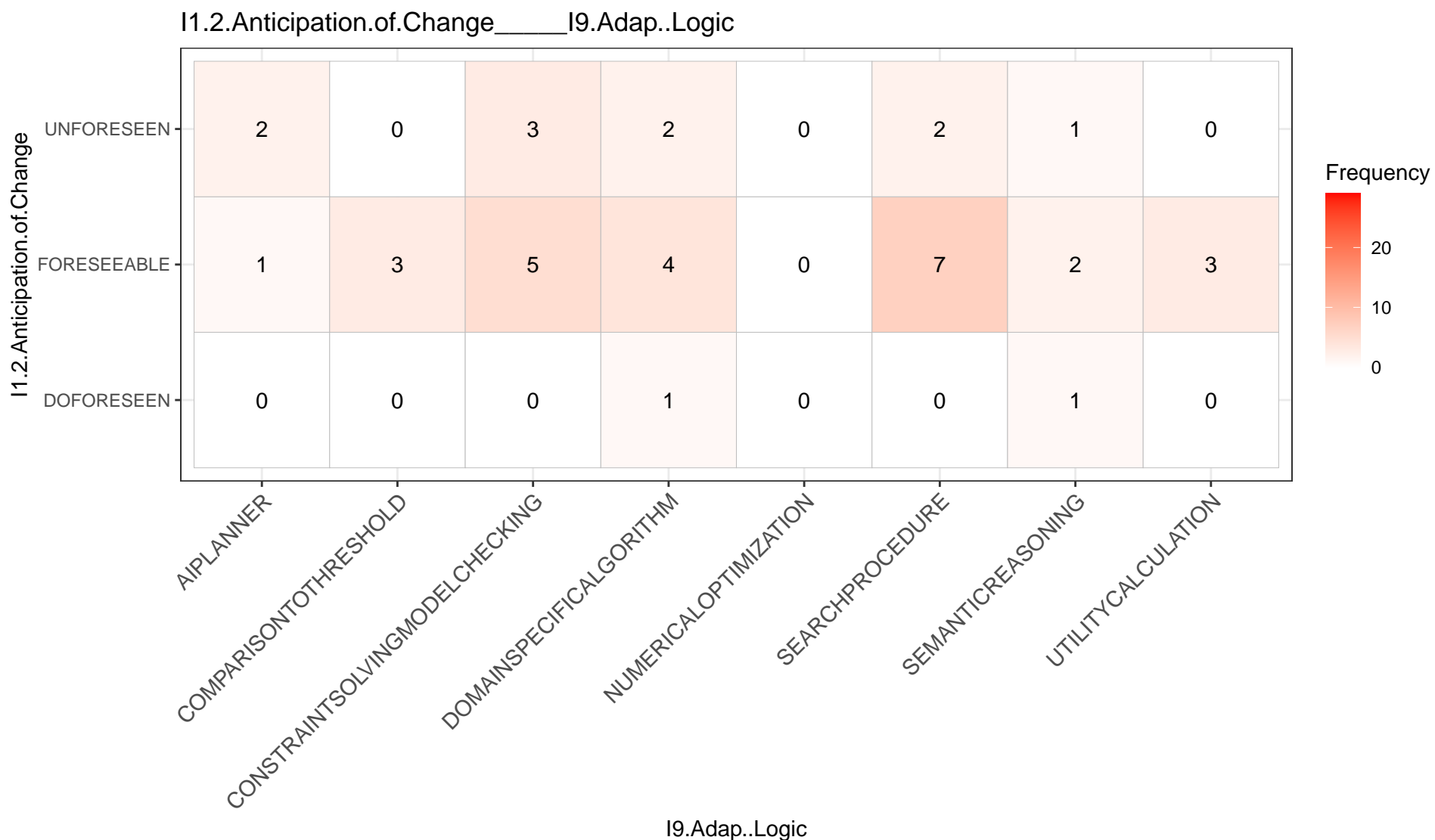


I1.2.Anticipation.of.Change_____Experiment.Method

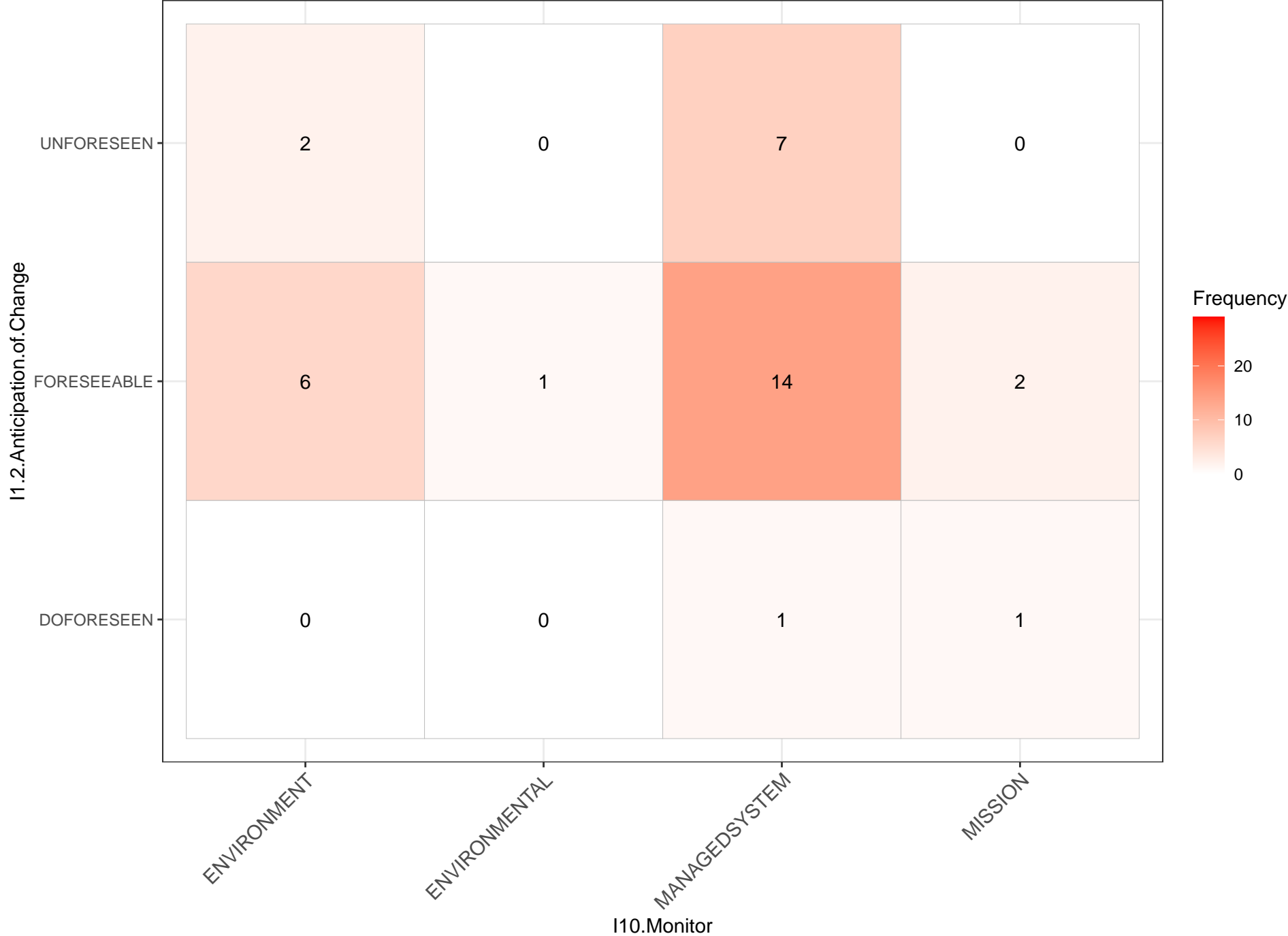


I1.2.Anticipation.of.Change_____I8.Evaluation

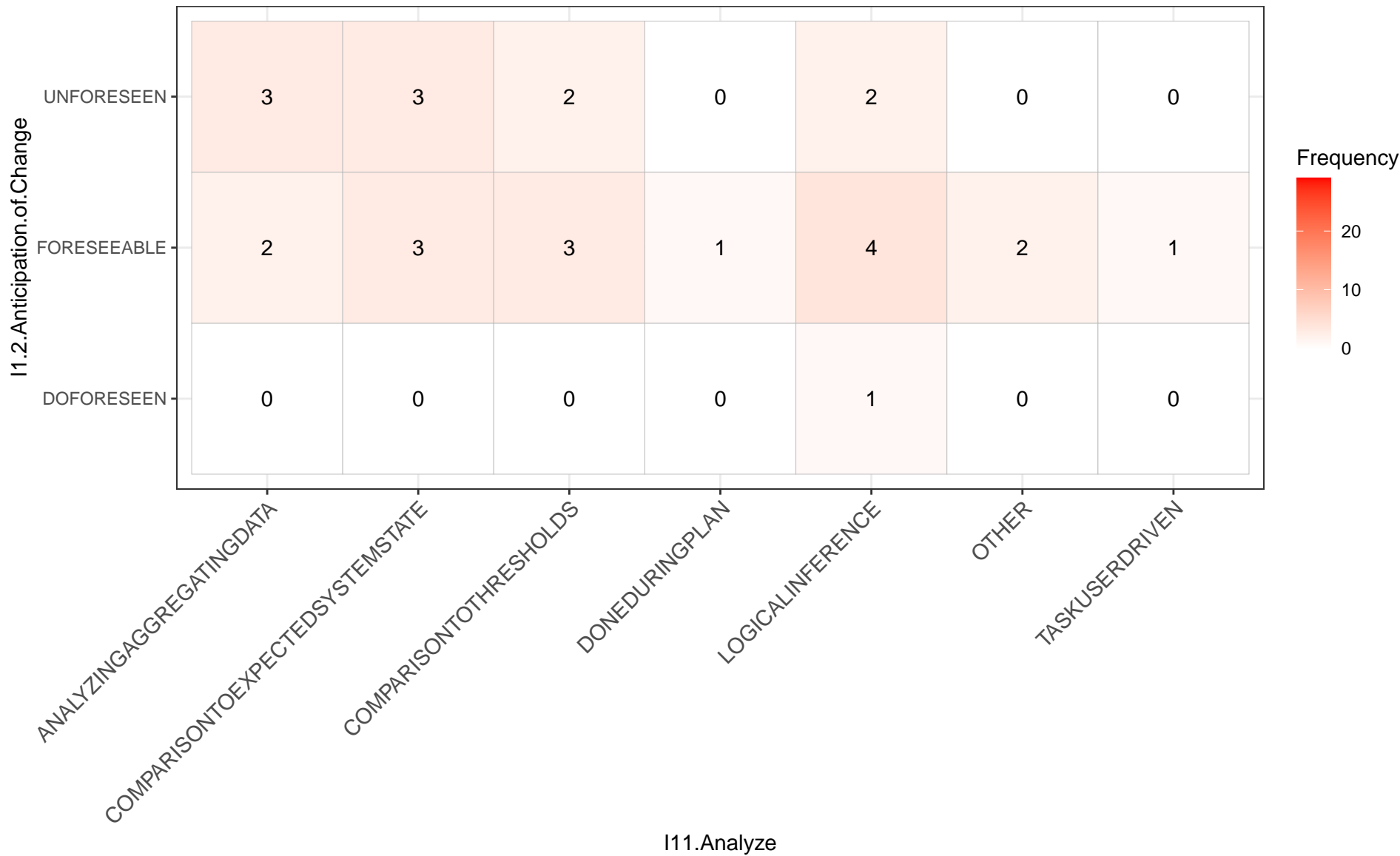


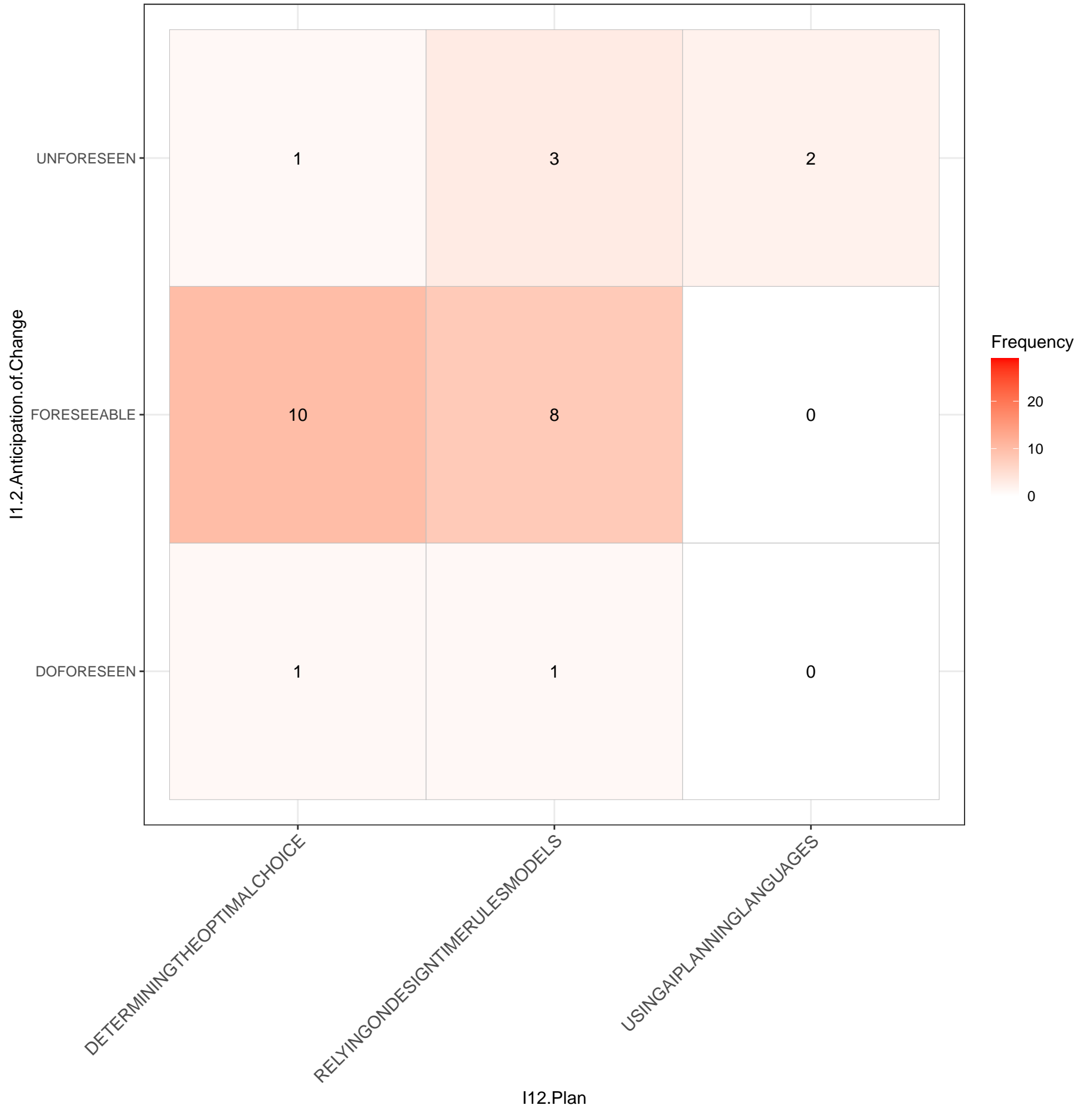


I1.2.Anticipation.of.Change_____I10.Monitor

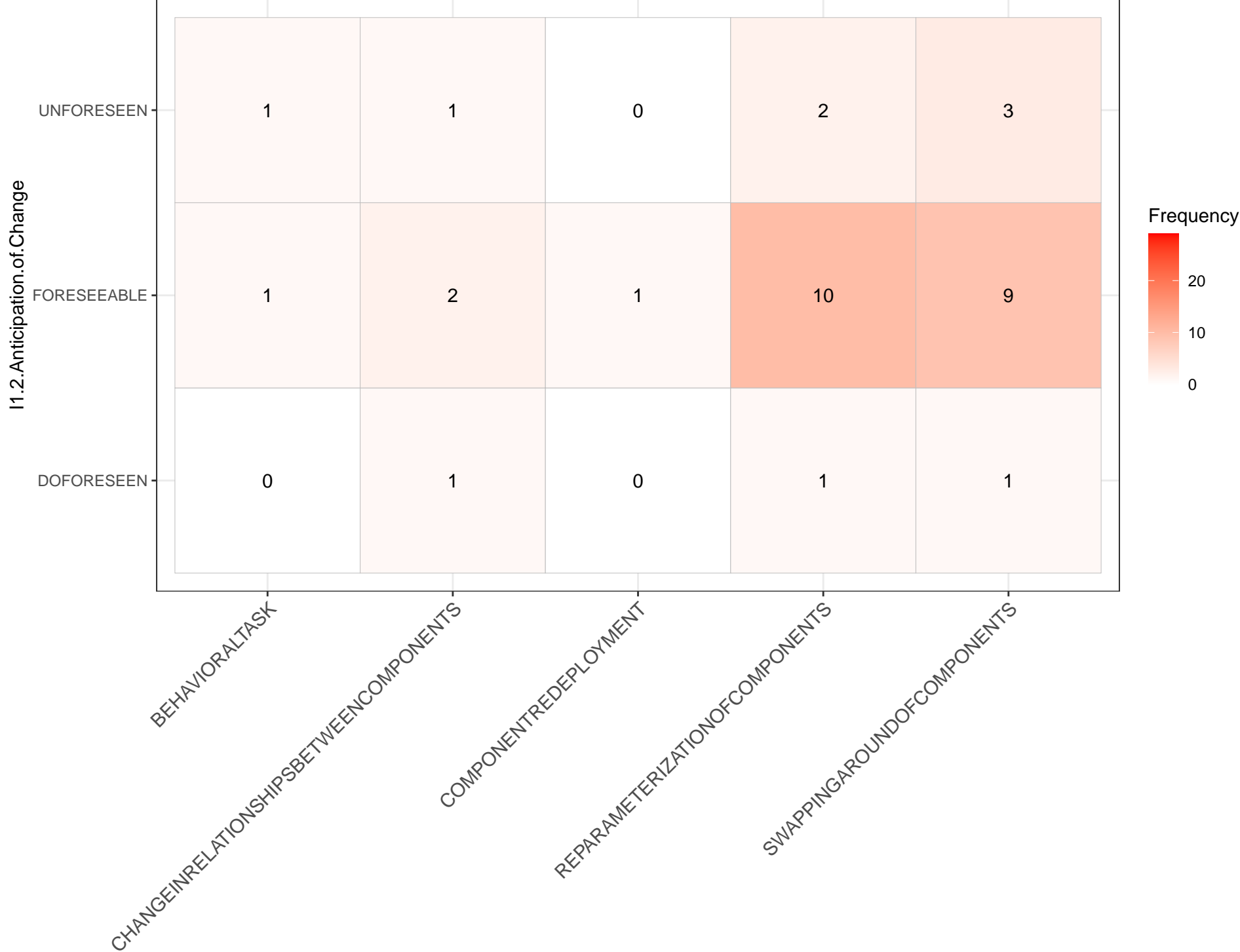


I1.2.Anticipation.of.Change_____I11.Analyze



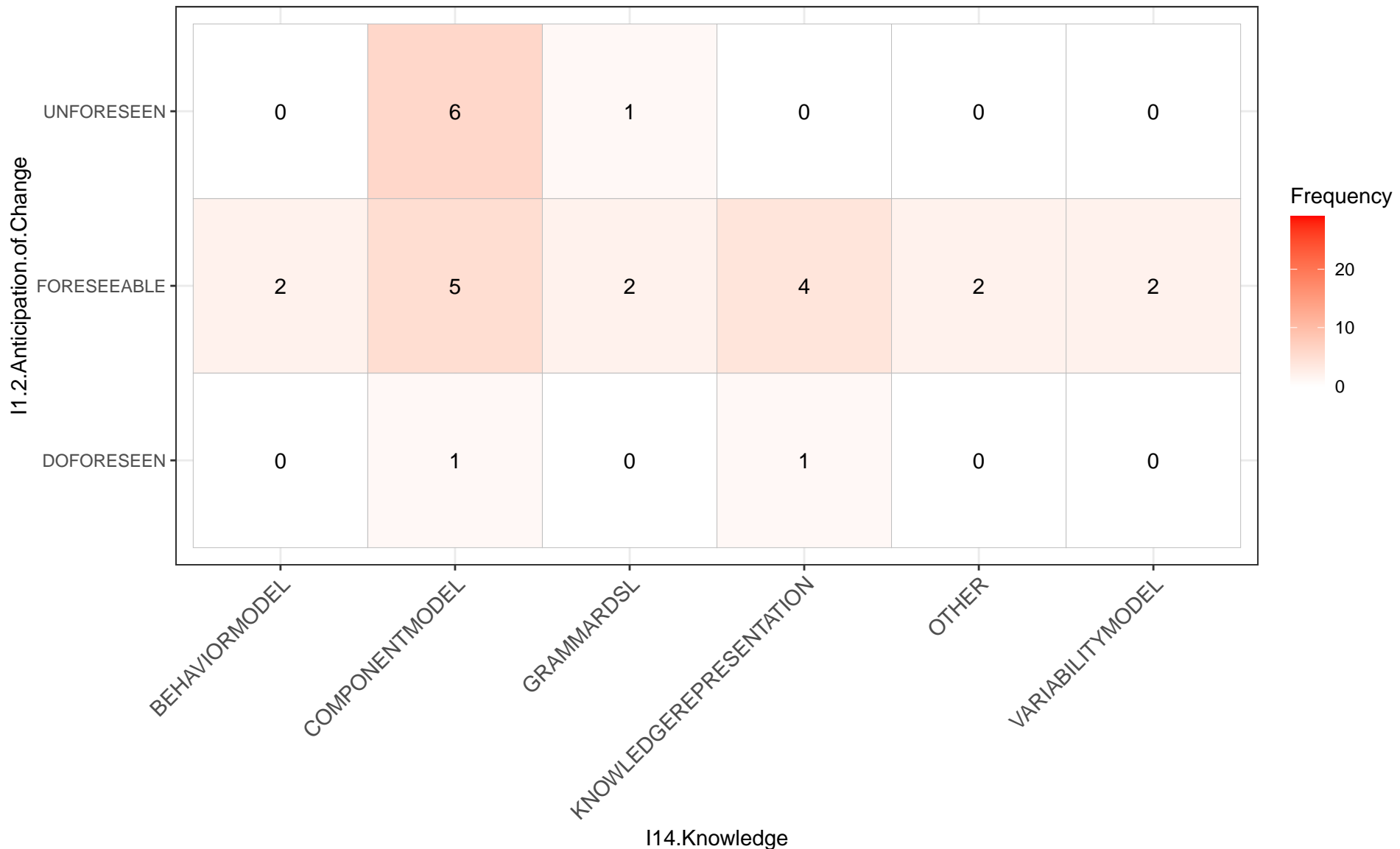


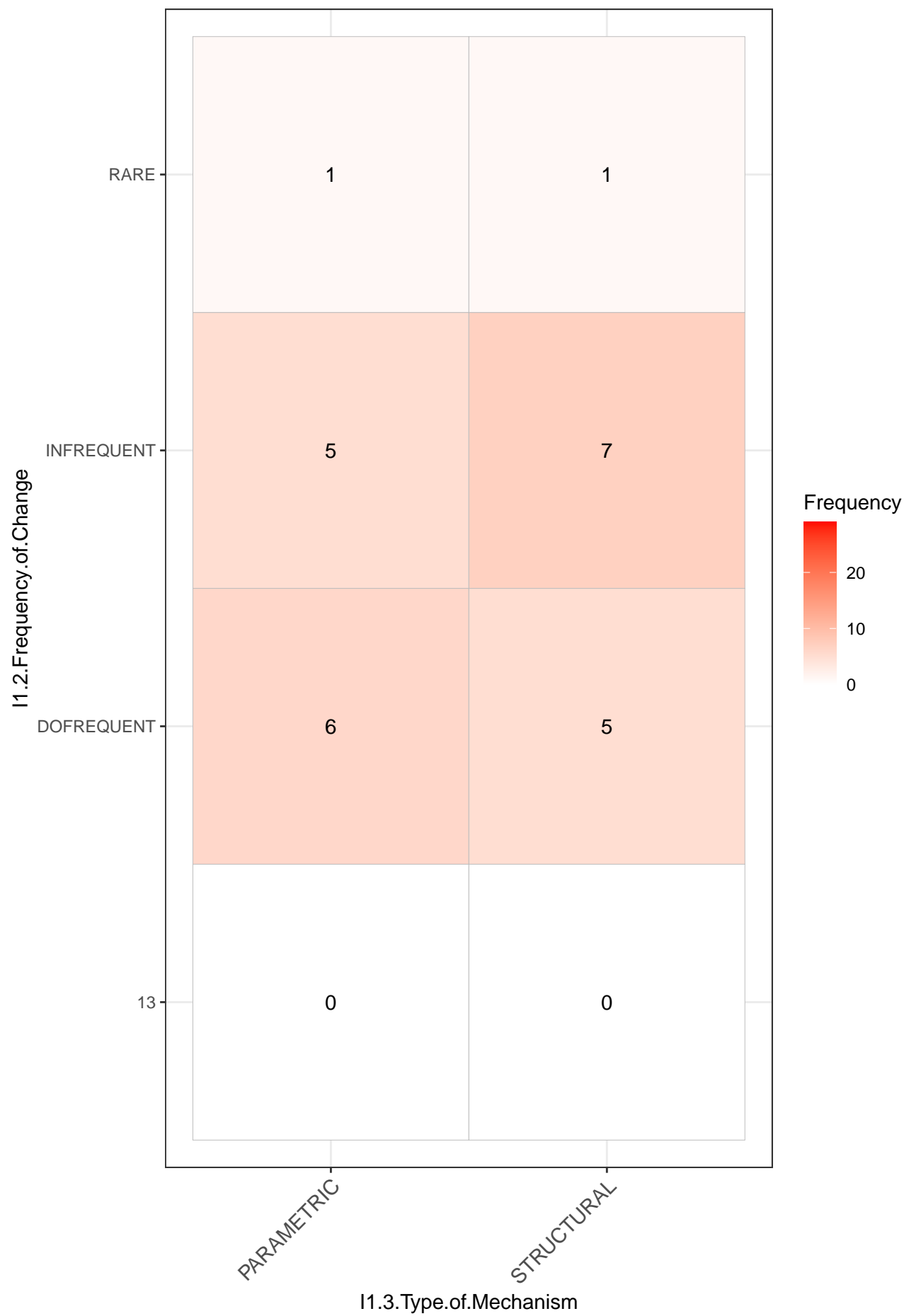
I1.2.Anticipation.of.Change_____I13.Execute

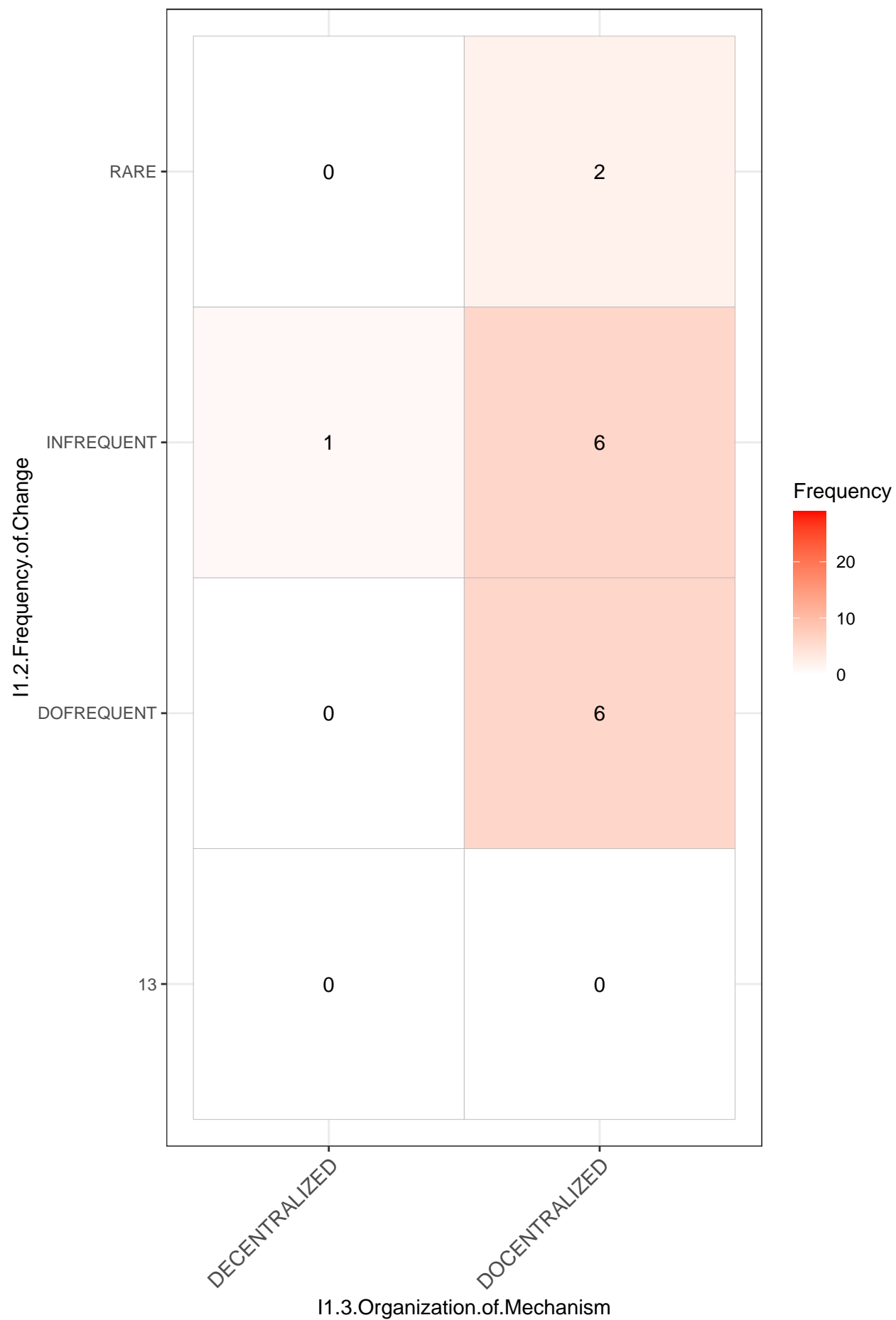


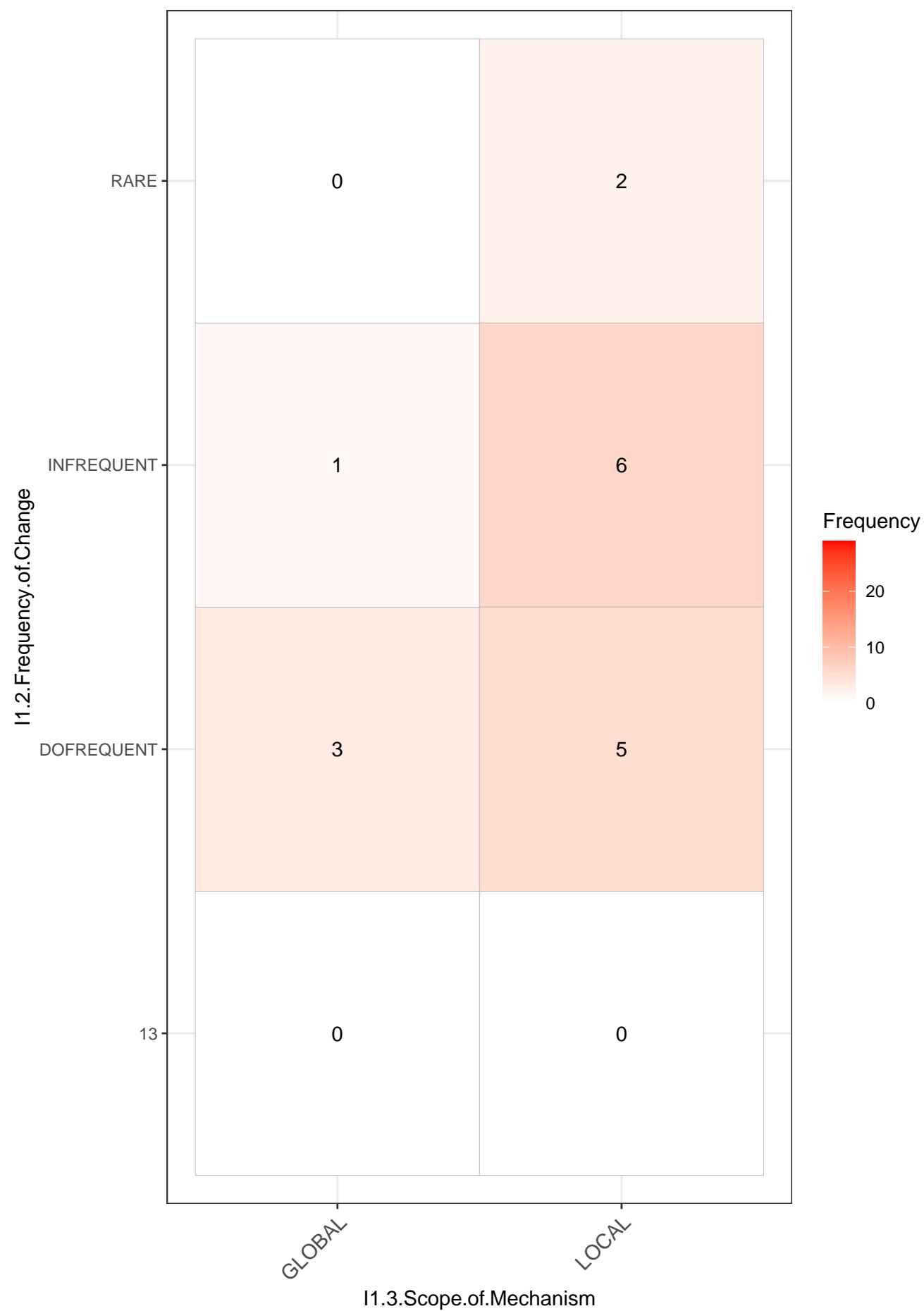
I13.Execute

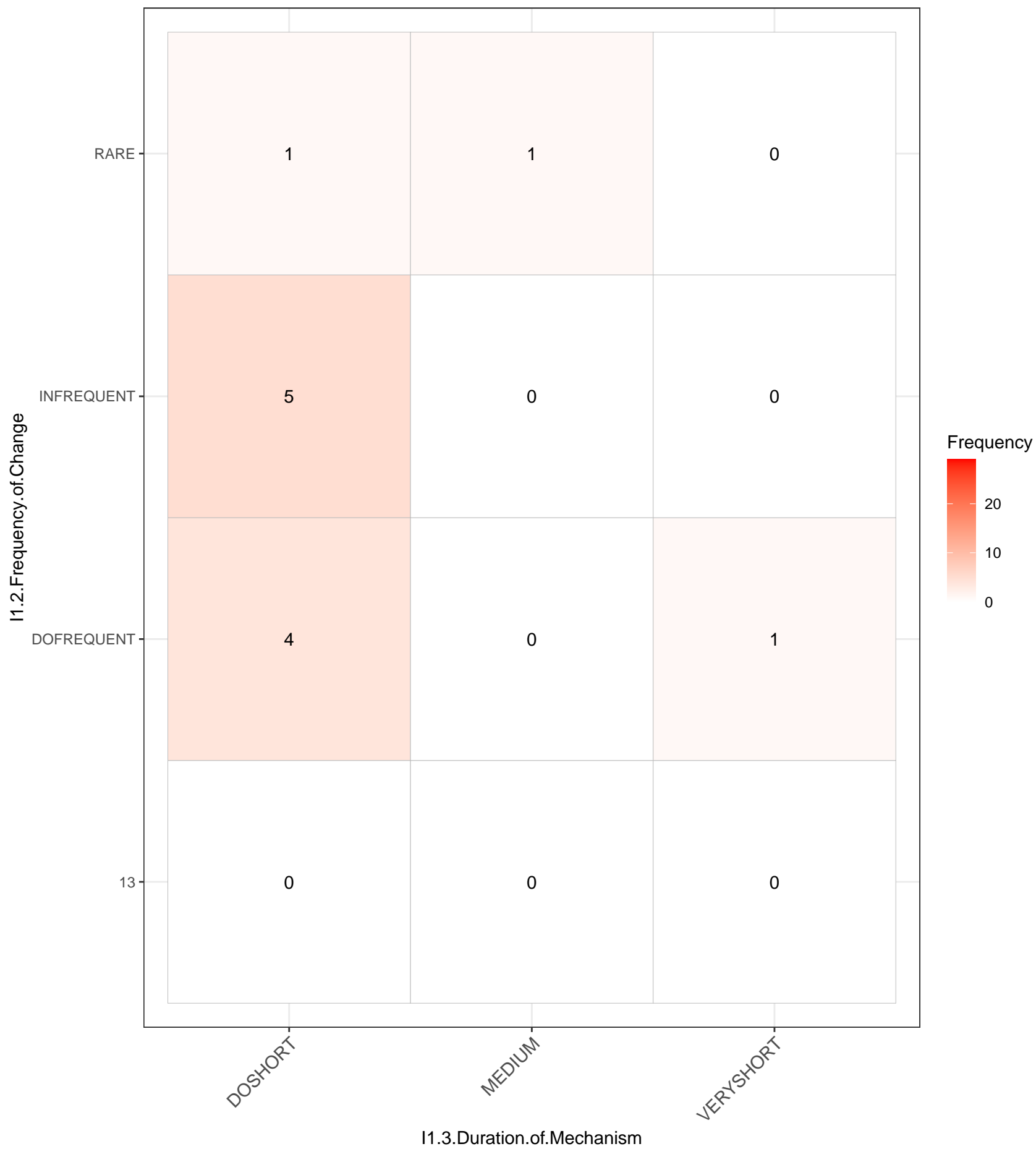
I1.2.Anticipation.of.Change_____I14.Knowledge

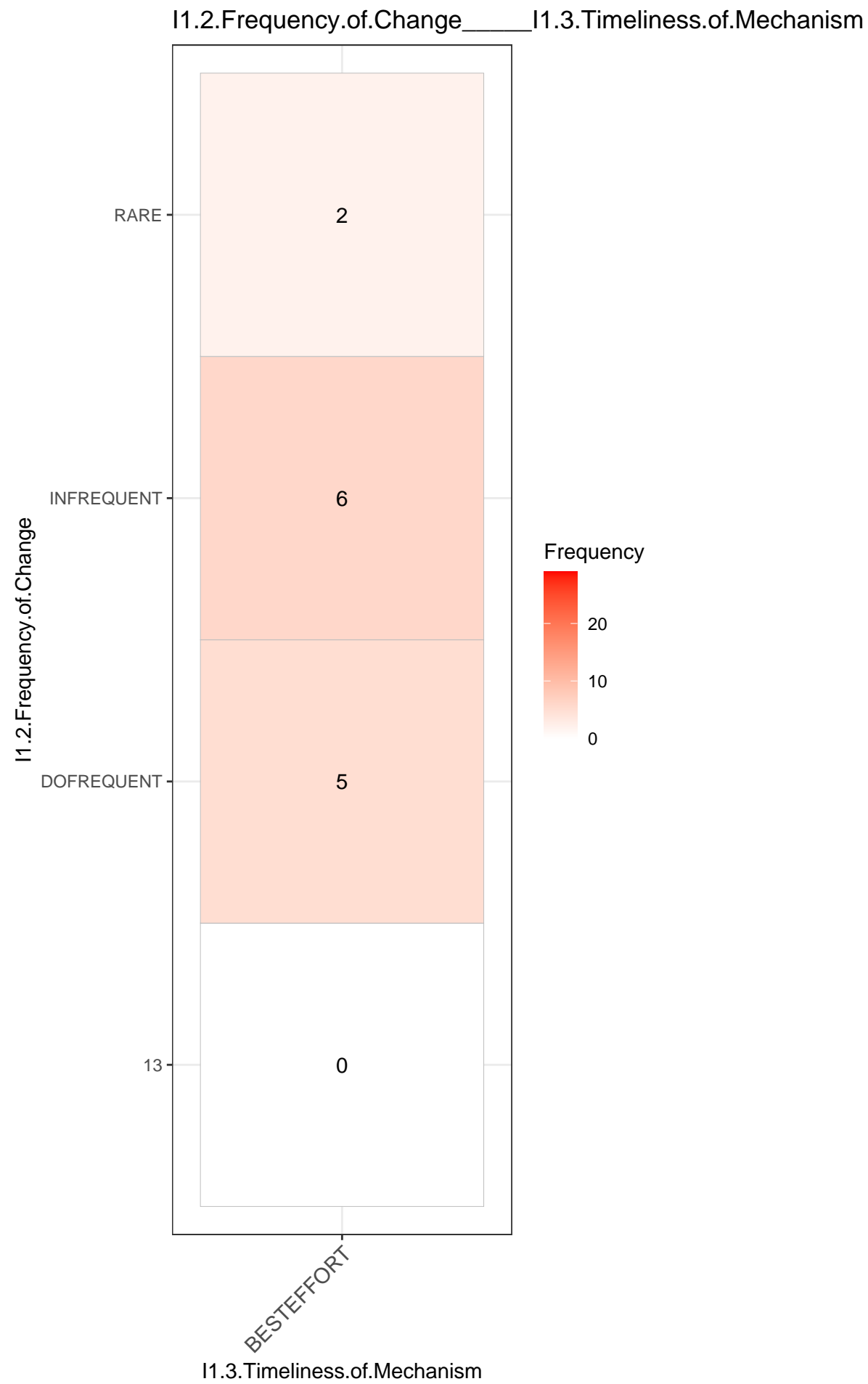


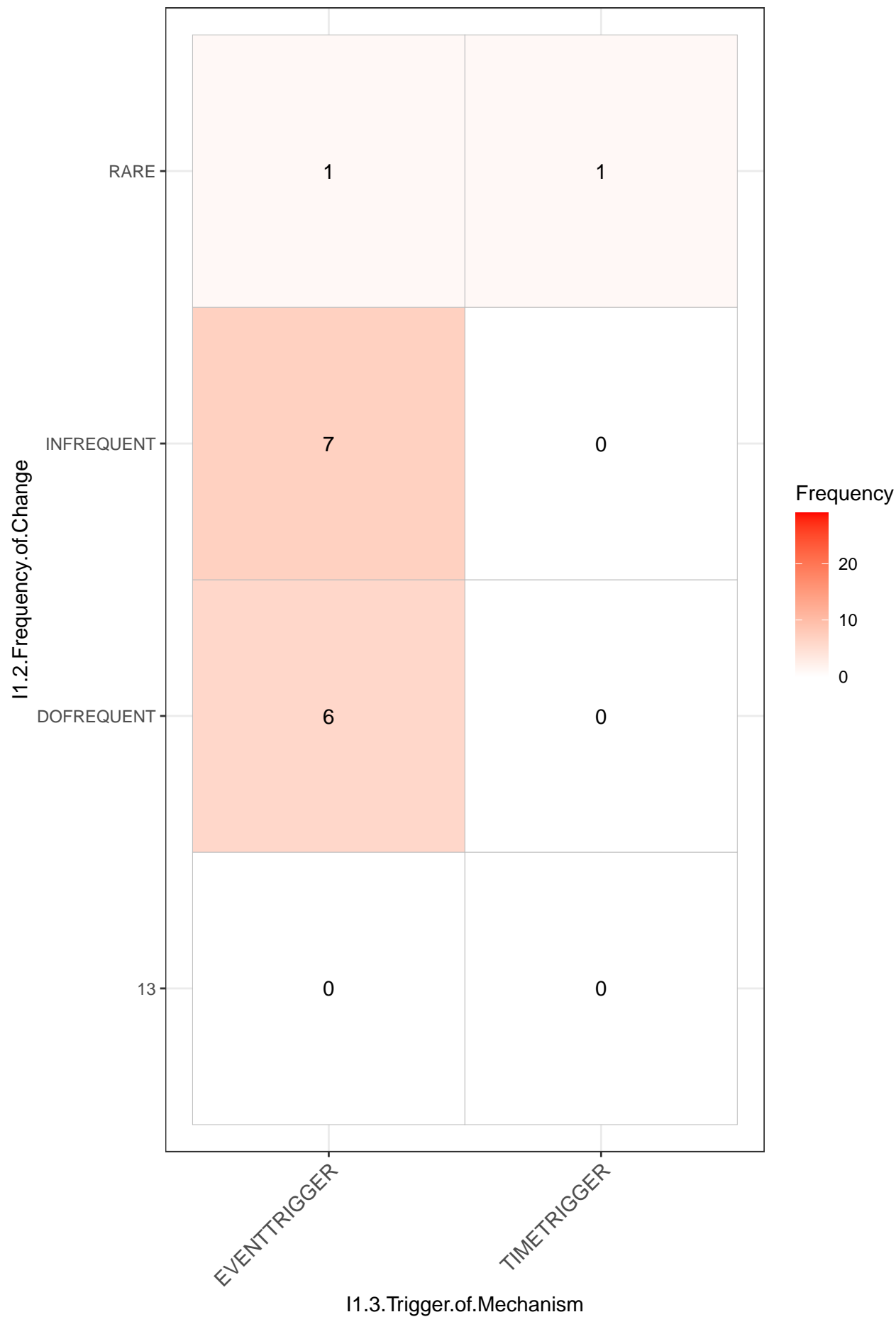


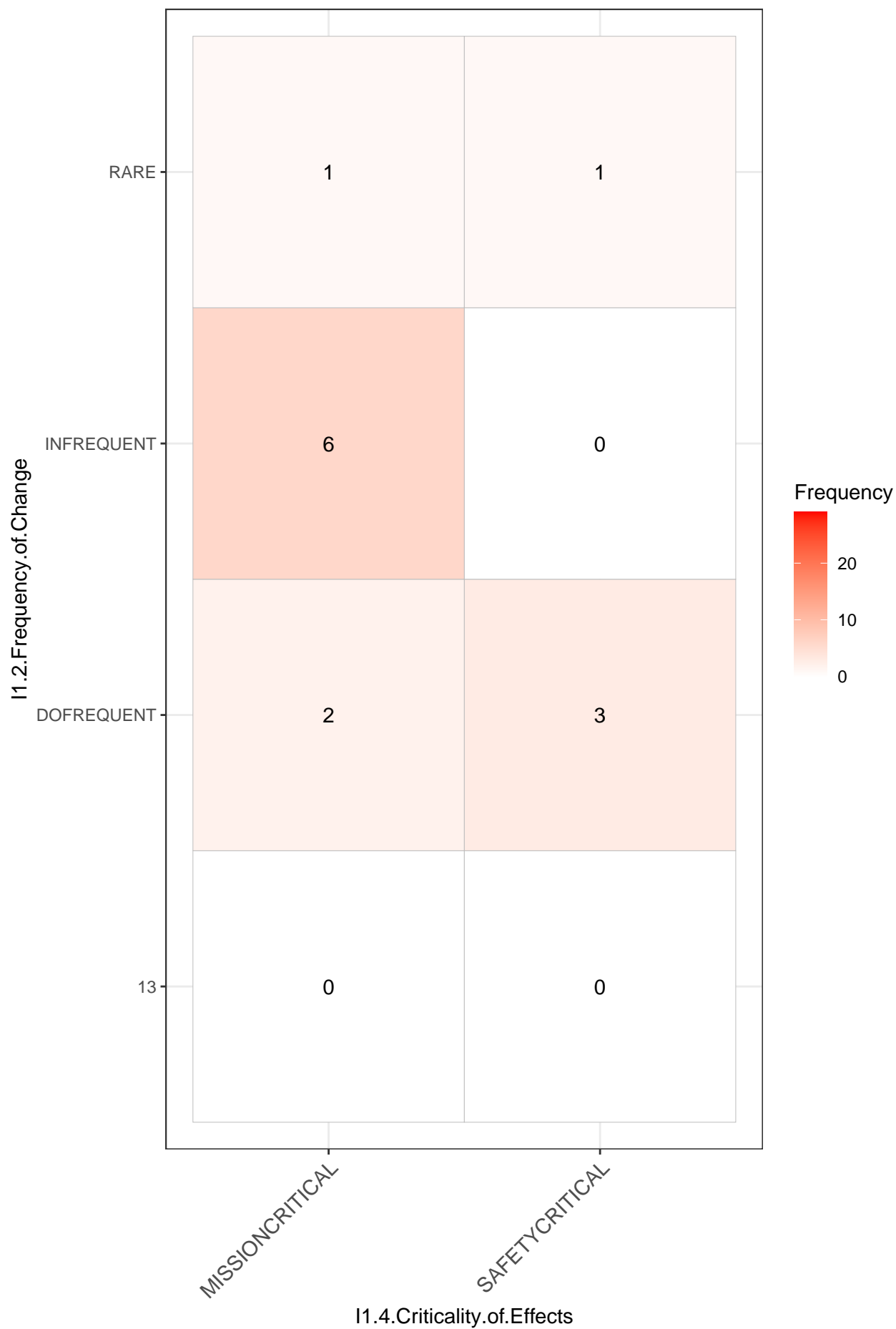


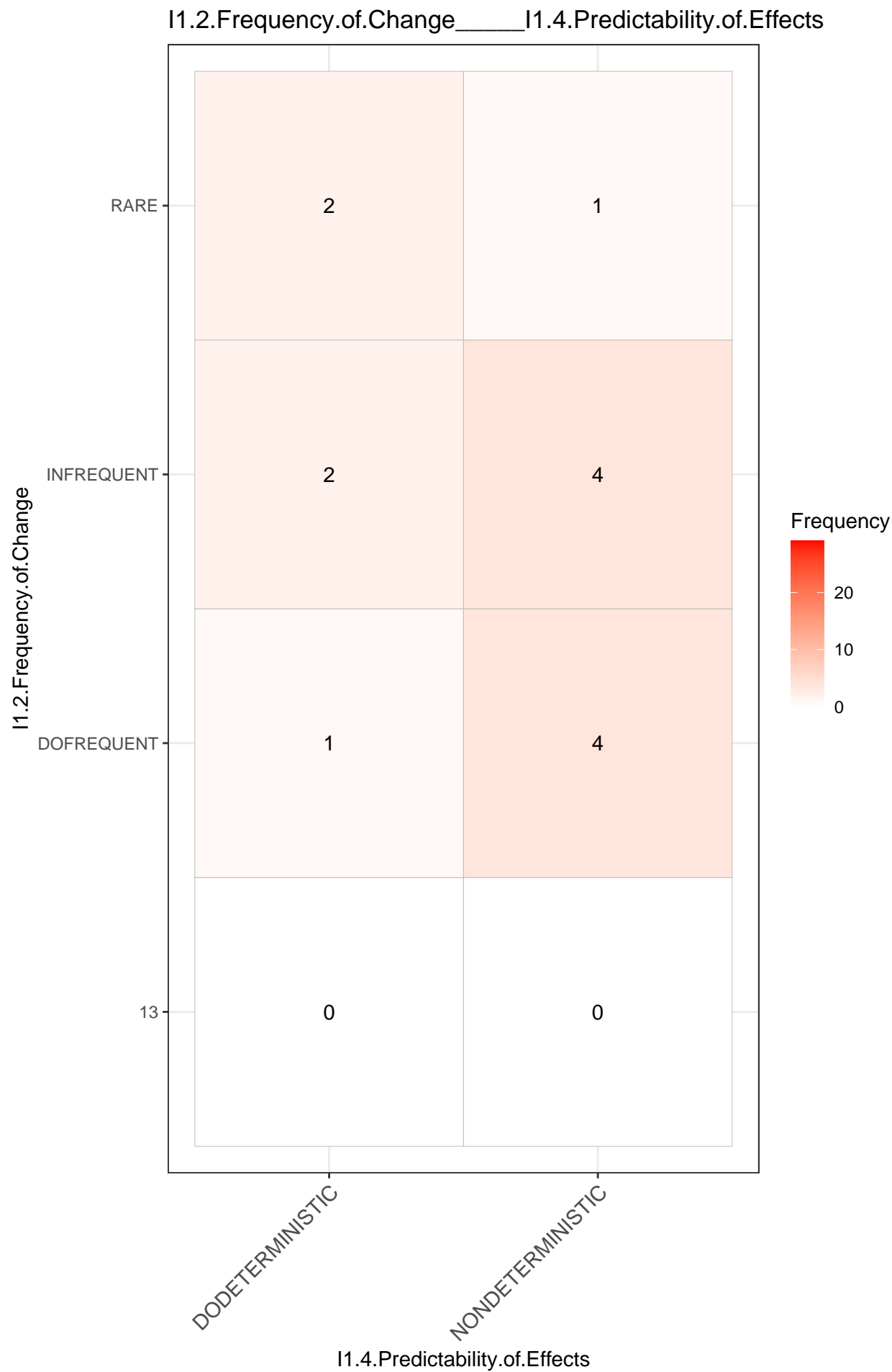


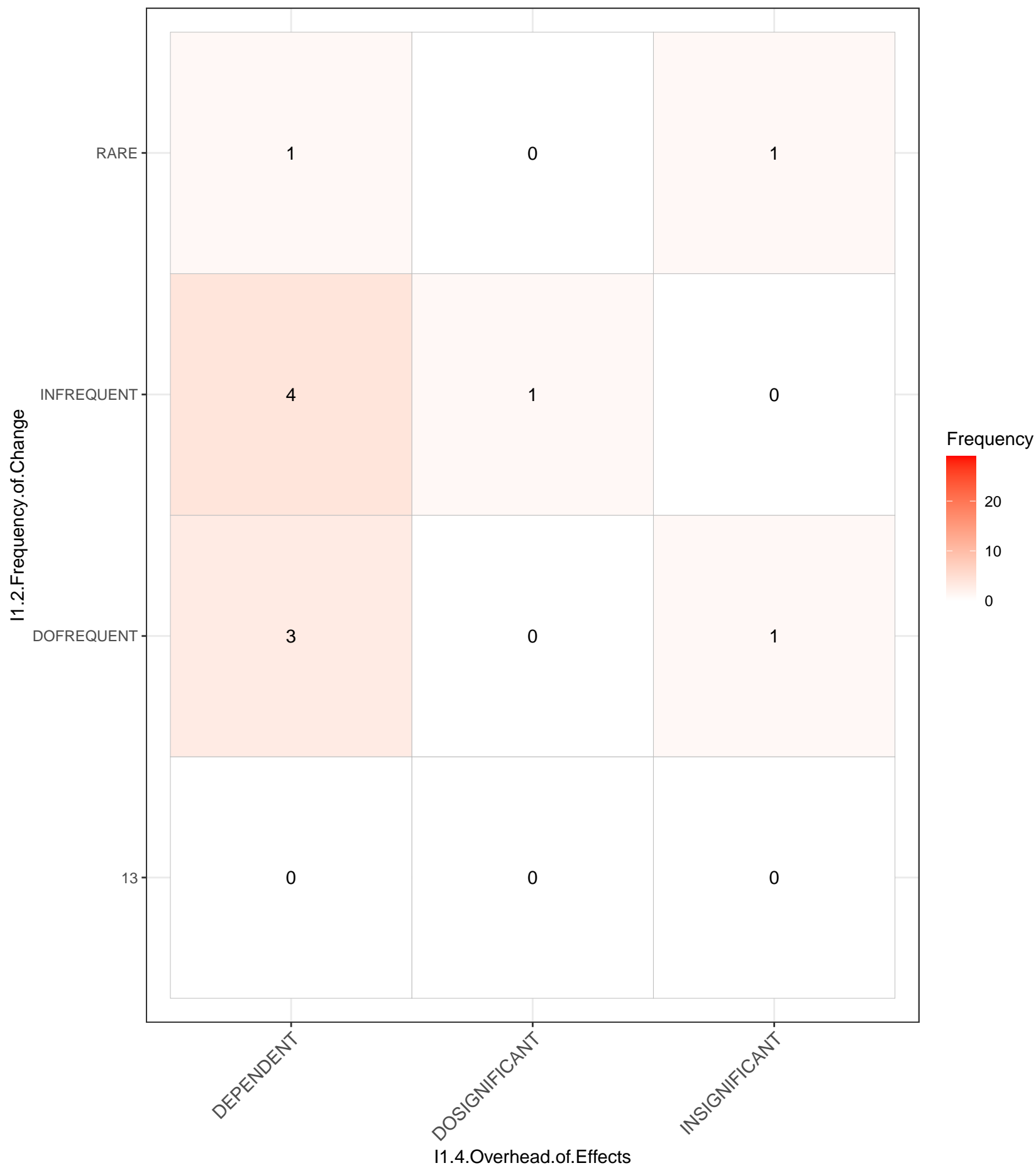


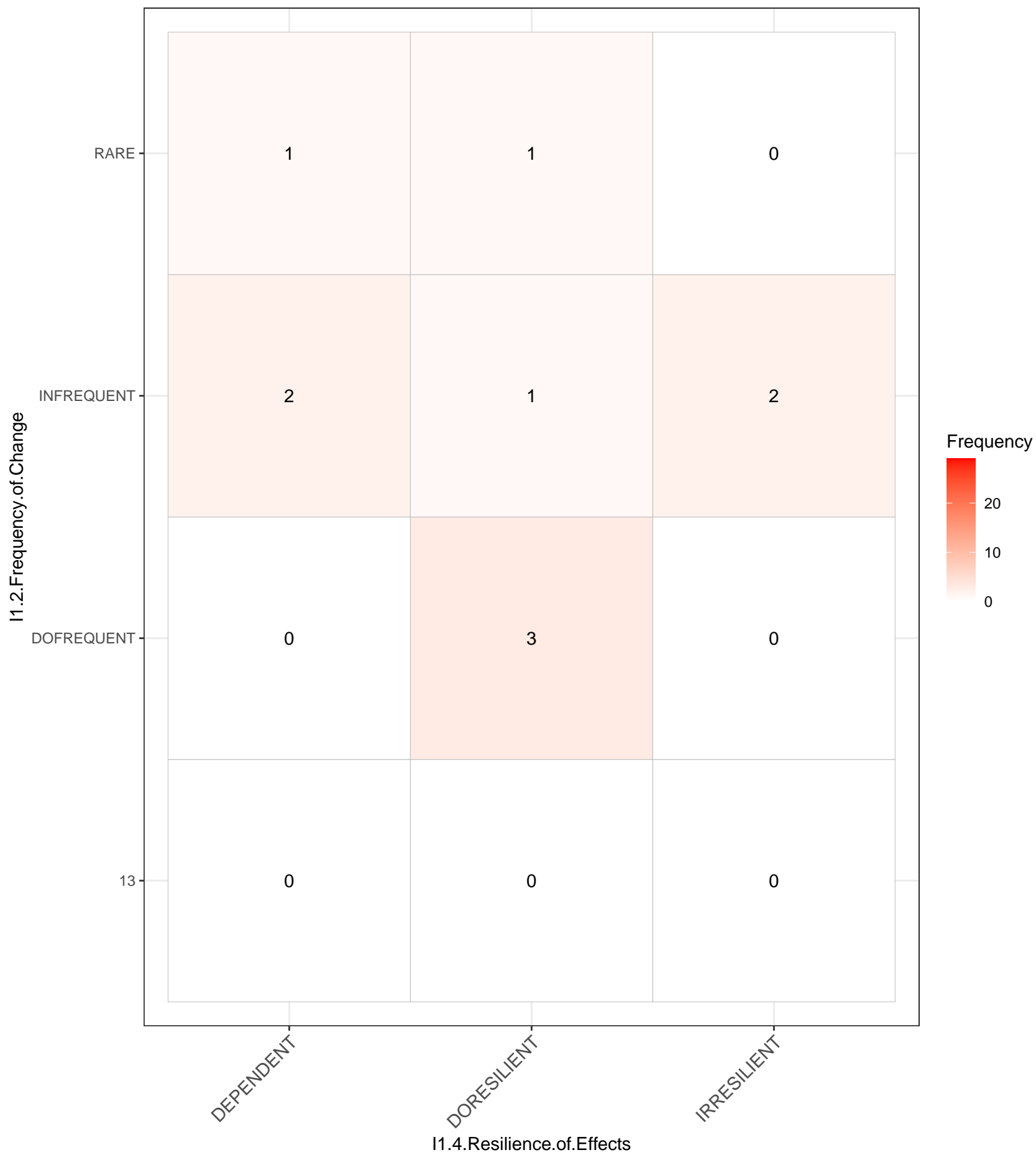




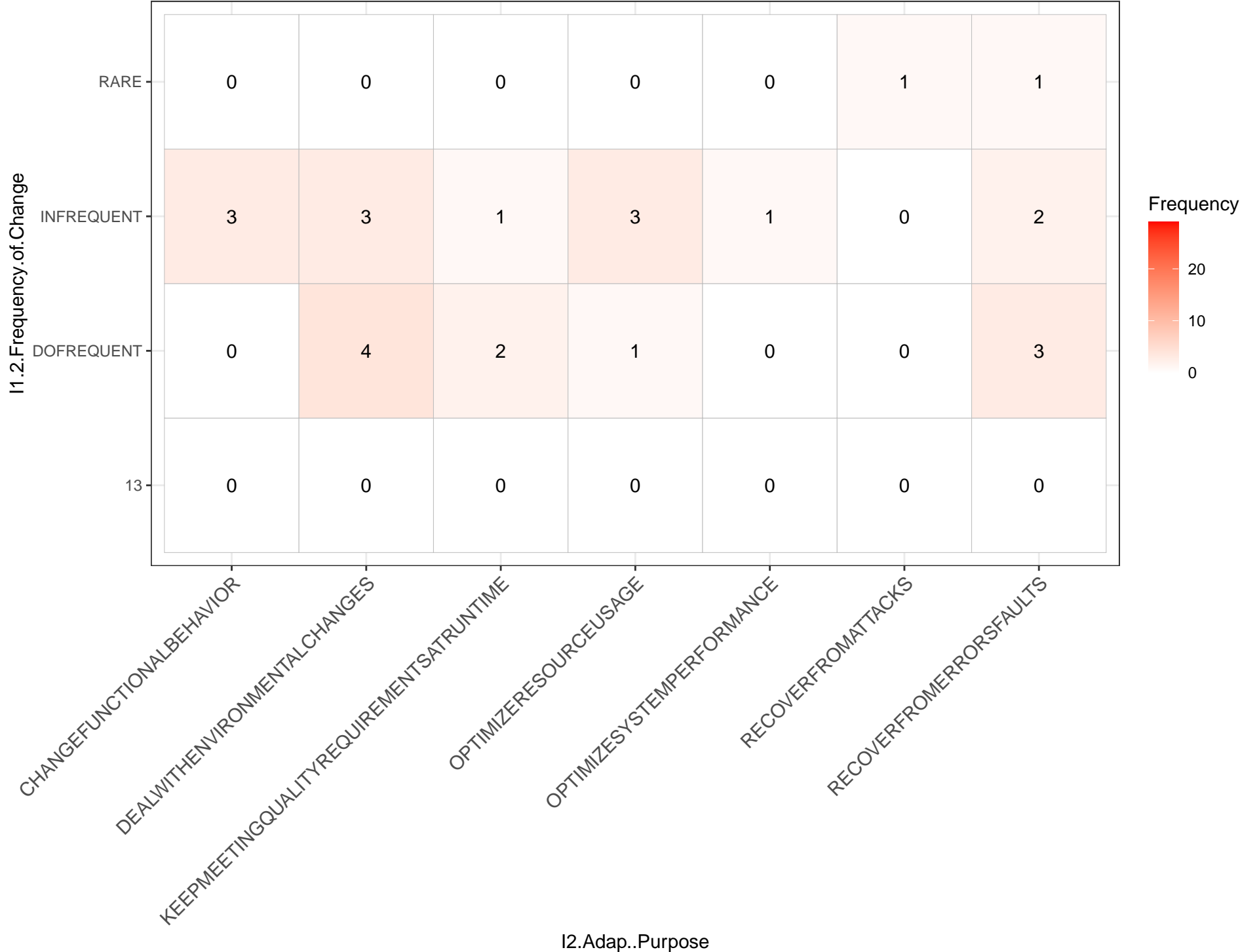








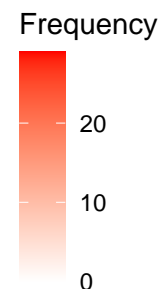
I1.2.Frequency.of.Change_____I2.Adap..Purpose



I1.2.Frequency.of.Change

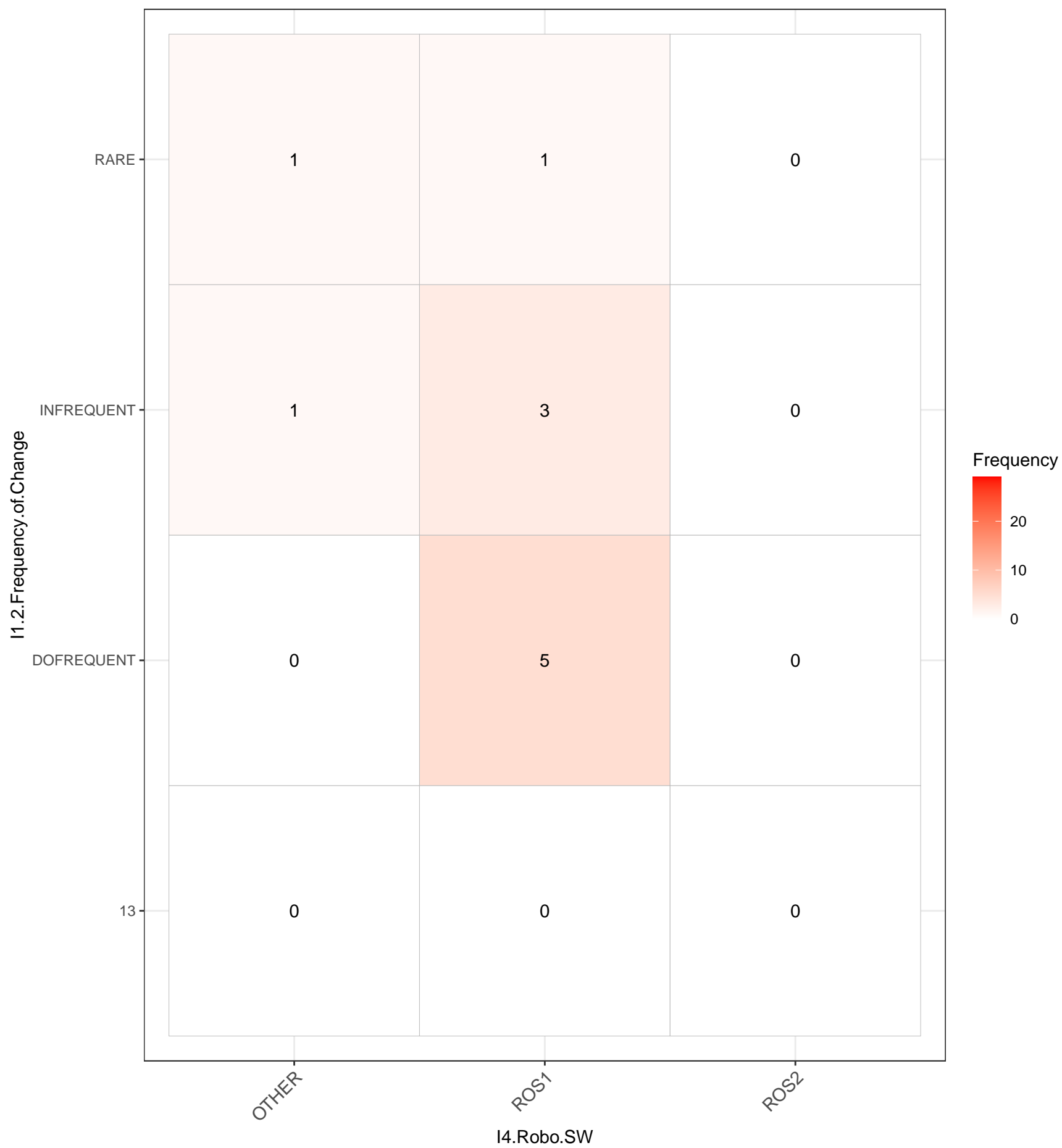
I1.2.Frequency.of.Change_____I3.Robot.Type

RARE	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
INFREQUENT	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	1	0	1	0	0	0	0	1	0	0
DOFREQUENT	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	2	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOXERCLEARPATH																									
CRAWLERTERMINATORBOT																									
FIELDMOBILEROBOTS																									
HETEROGENOUSROBOTS																									
HEXMANIPULATOR																									
HEXSERVICEROBOT																									
IROBOTCREATE2																									
MOBILEMANIPULATOR																									
MOBILEROBOTS																									
MOBOTTERRESTRIAL																									
MOBILEROBOTTIAGO																									
MOBILESERVICEROBOT																									
MSUEVORALLYMOBILETERRESTRIAL																									
MULTIPLEHEXROTOR																									
NAOROBOT																									
PIONEER3DX																									
QUADROCOPTER																									
RESCUE																									
SINGLESERVINGROTATIONROBOT																									
TEDUSARTERRESTRIALSEARCH																									
TRIGLIDEINDUSTRIALASSEMBLY																									
TURTLEBOT																									
WAREHOUSEDELIVERYROBOT																									
WHICHISANINDUSTRIALAGV																									

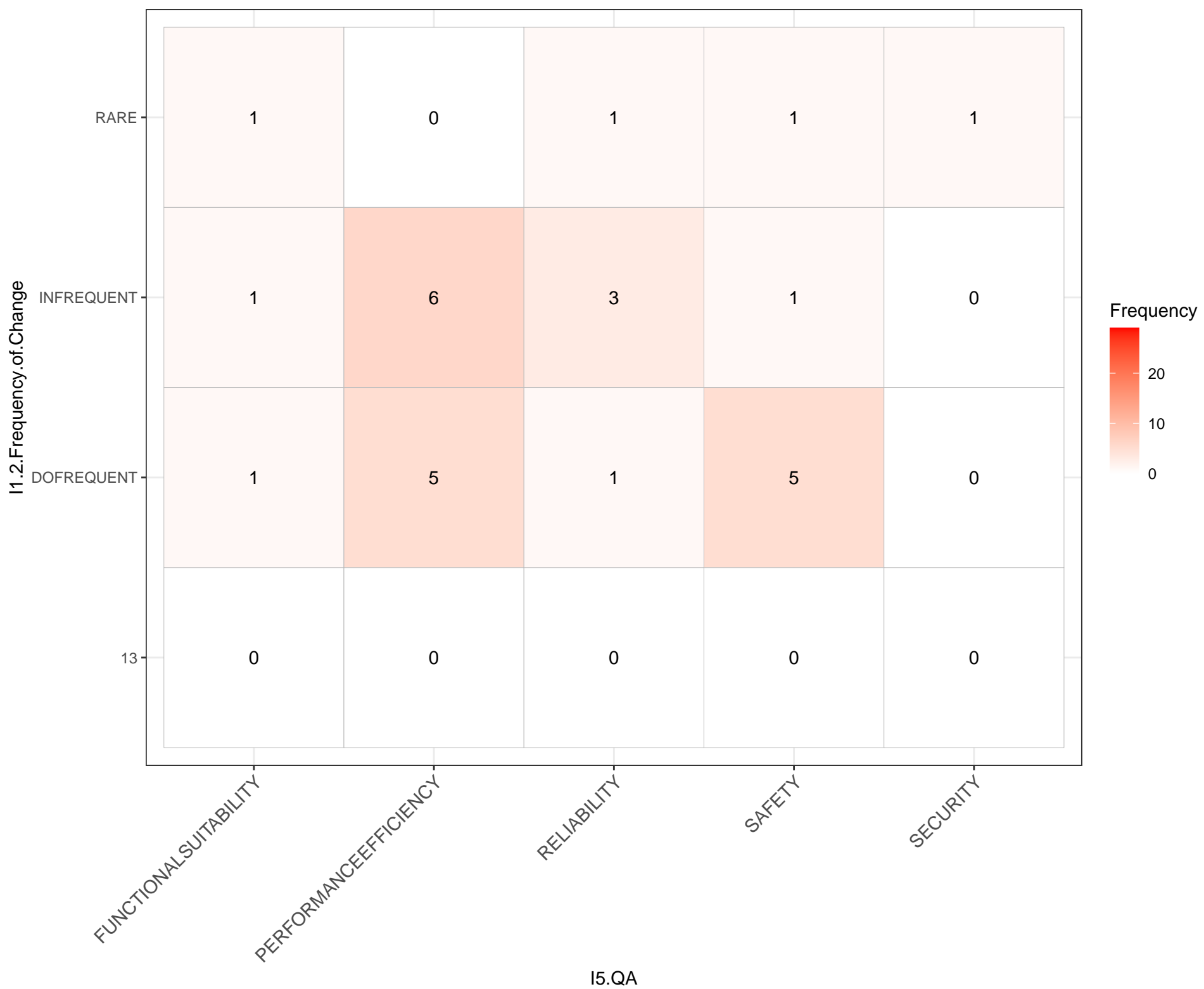


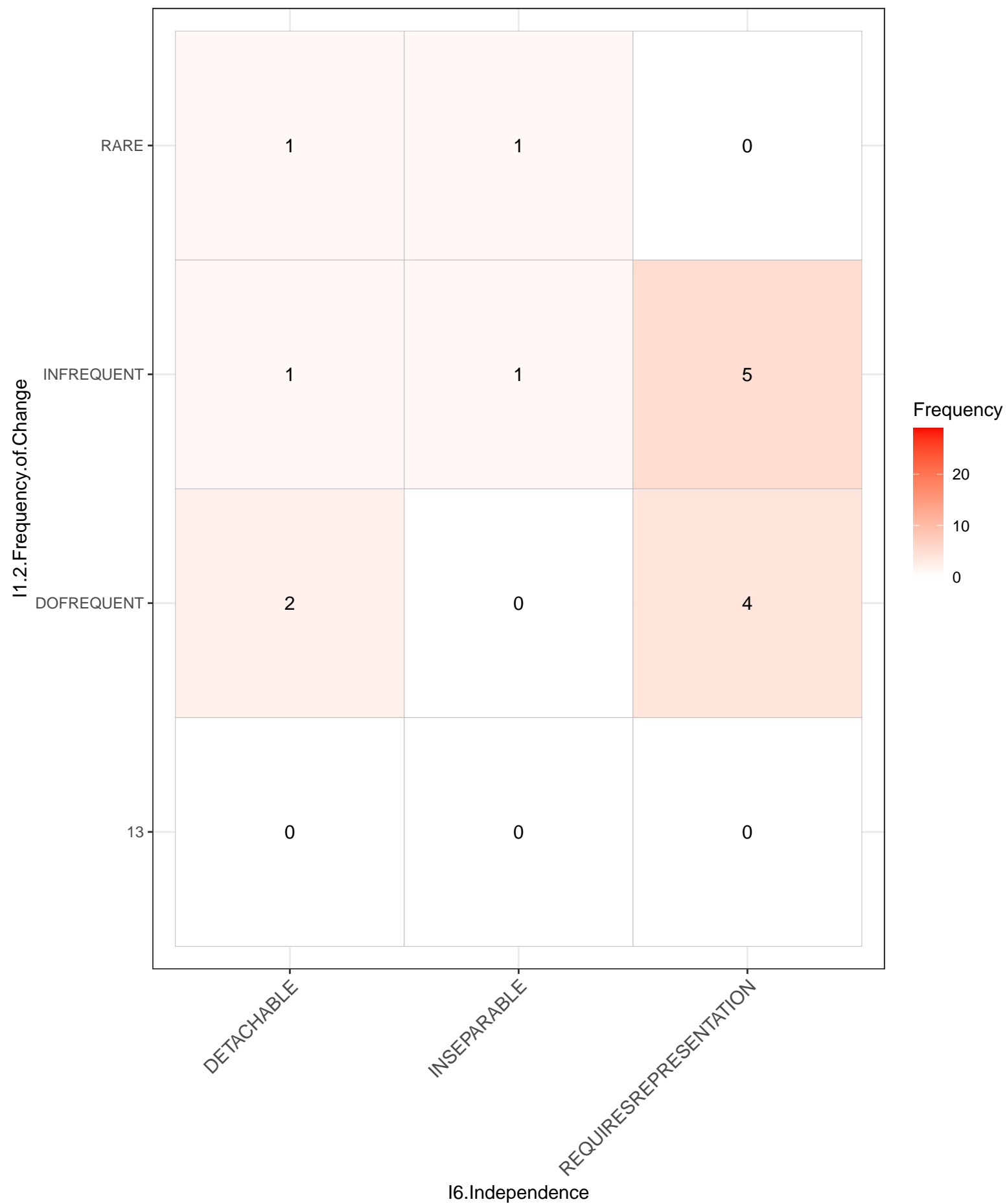
I3.Robot.Type

I1.2.Frequency.of.Change_____I4.Robo.SW

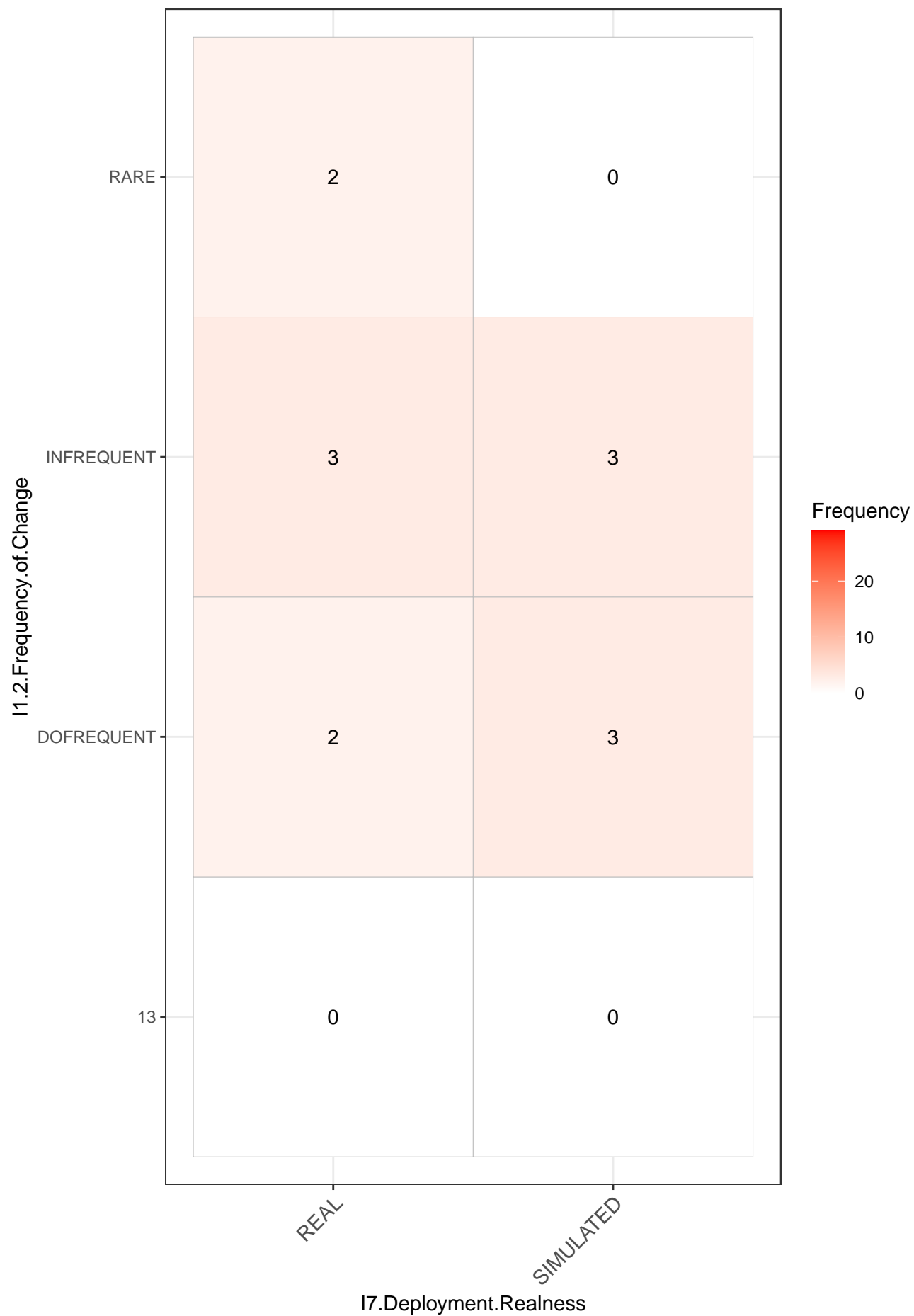


I1.2.Frequency.of.Change_____I5.QA

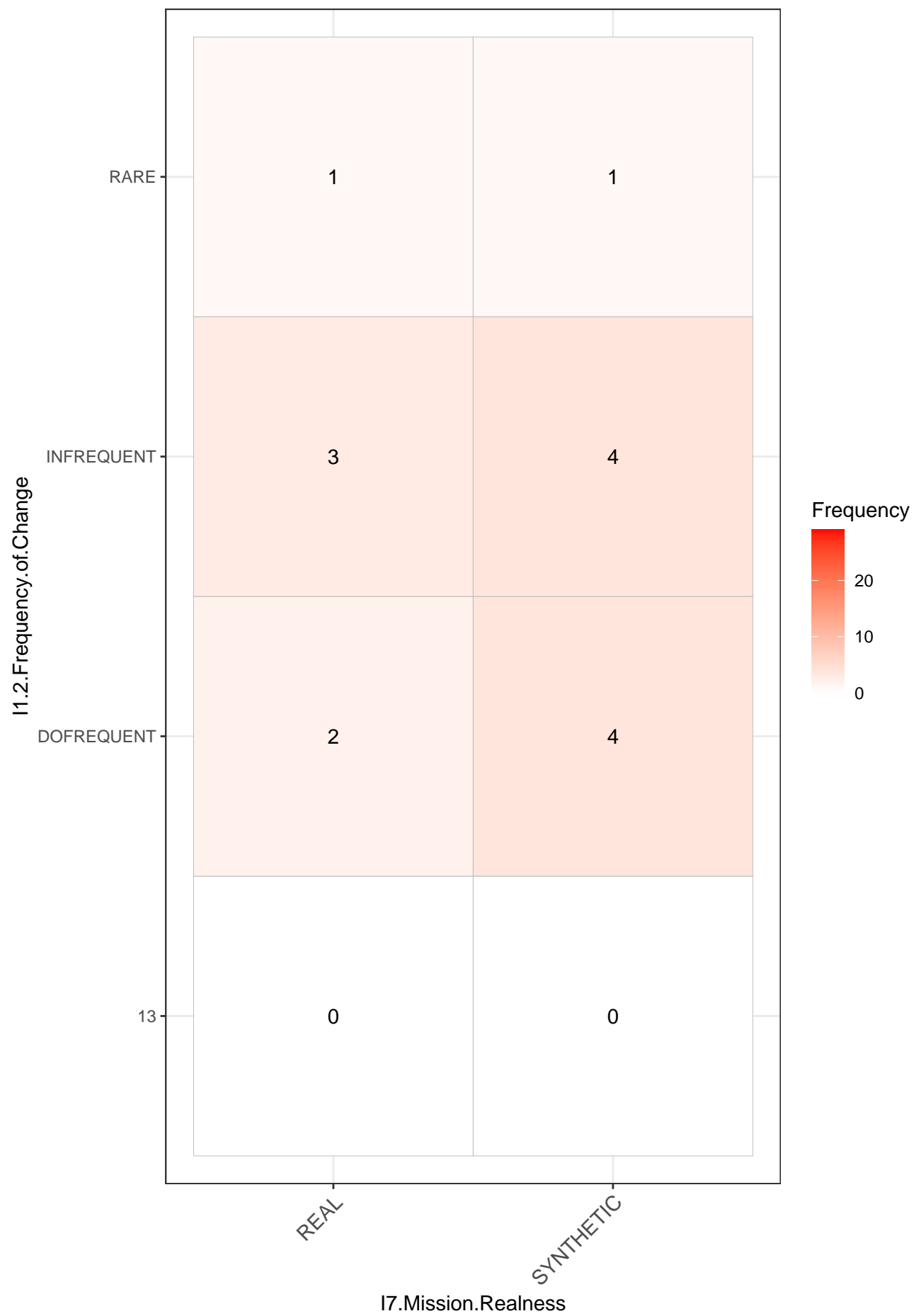




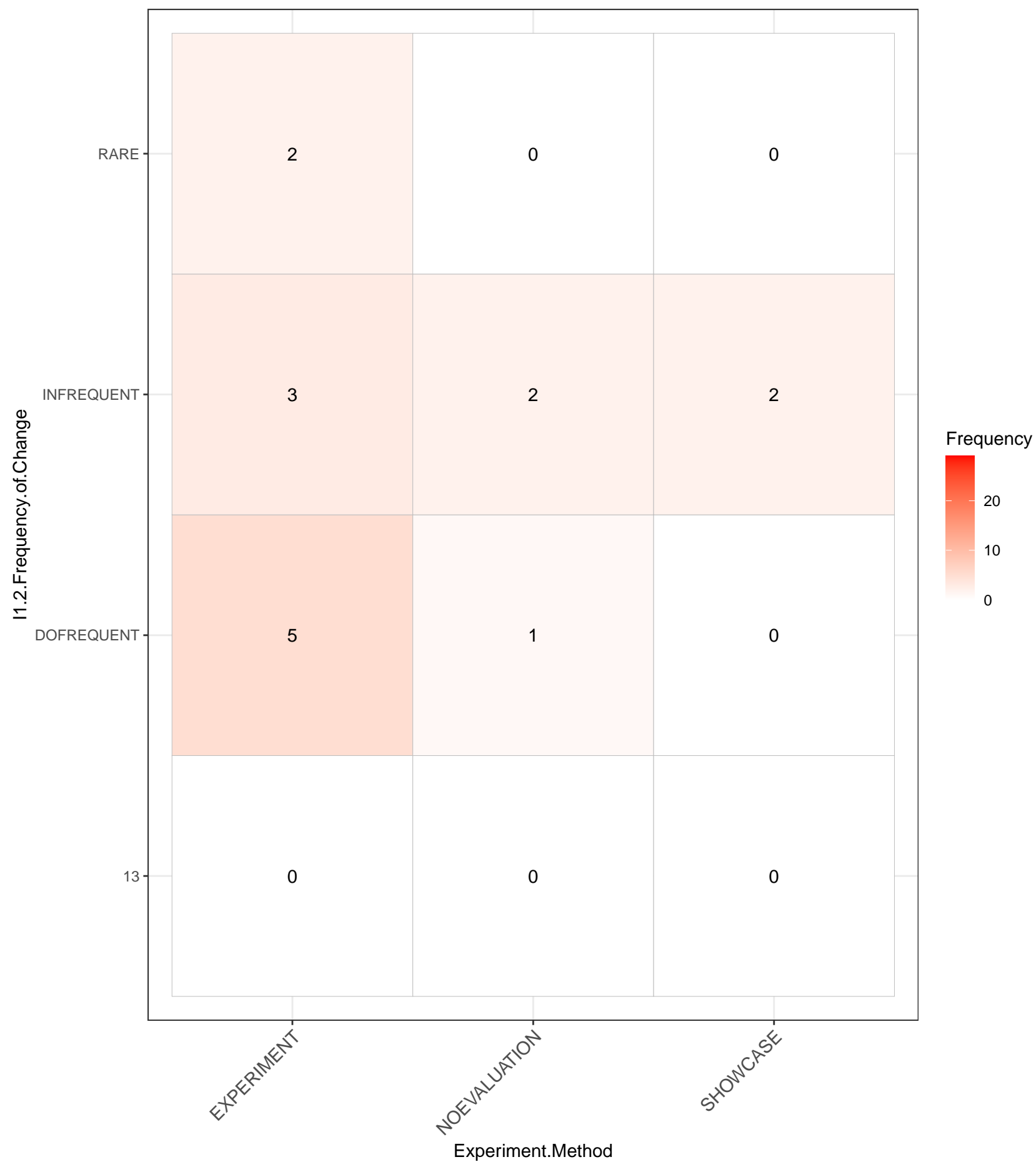
I1.2.Frequency.of.Change_____I7.Deployment.Realness



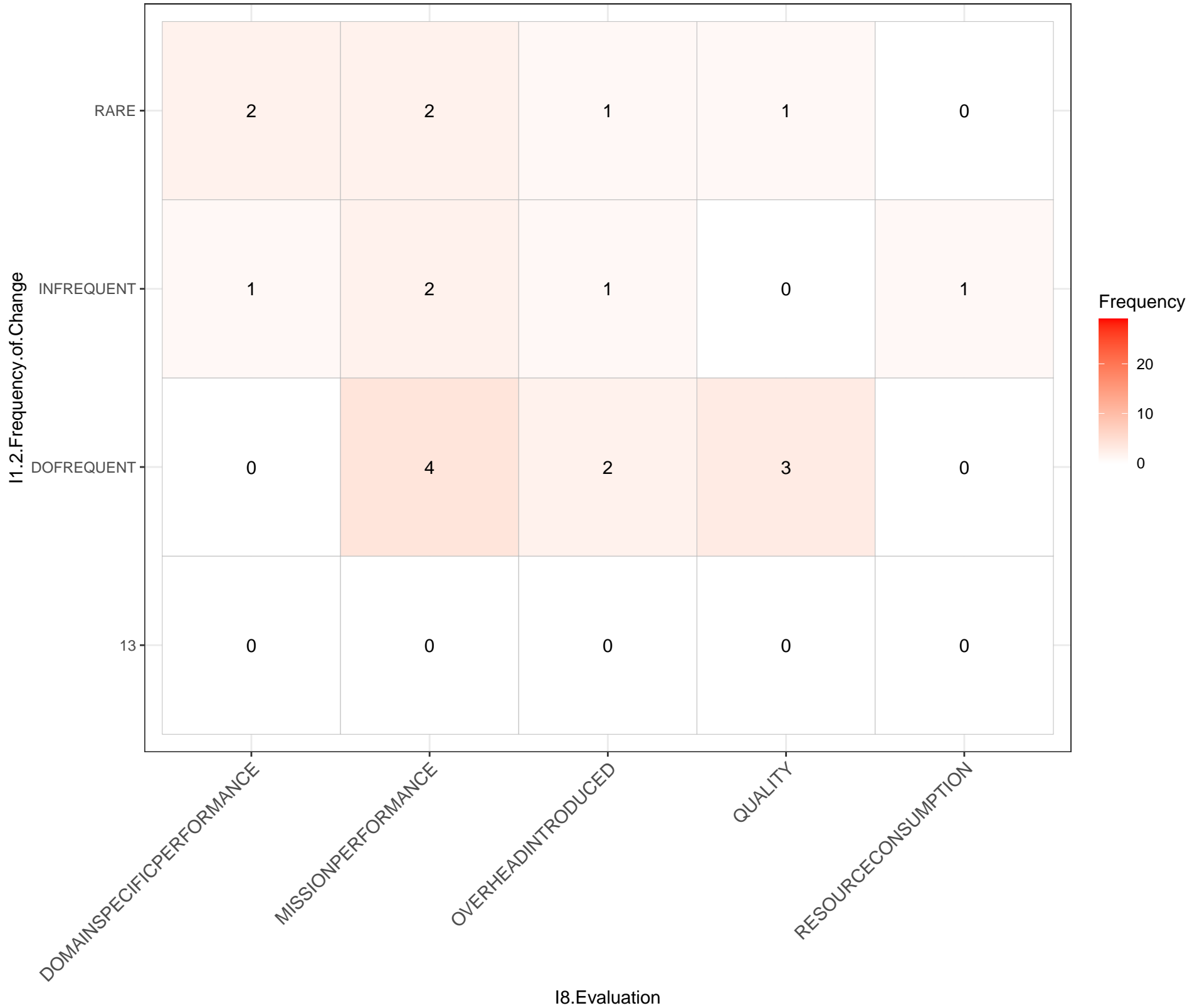
I1.2.Frequency.of.Change_____I7.Mission.Realness



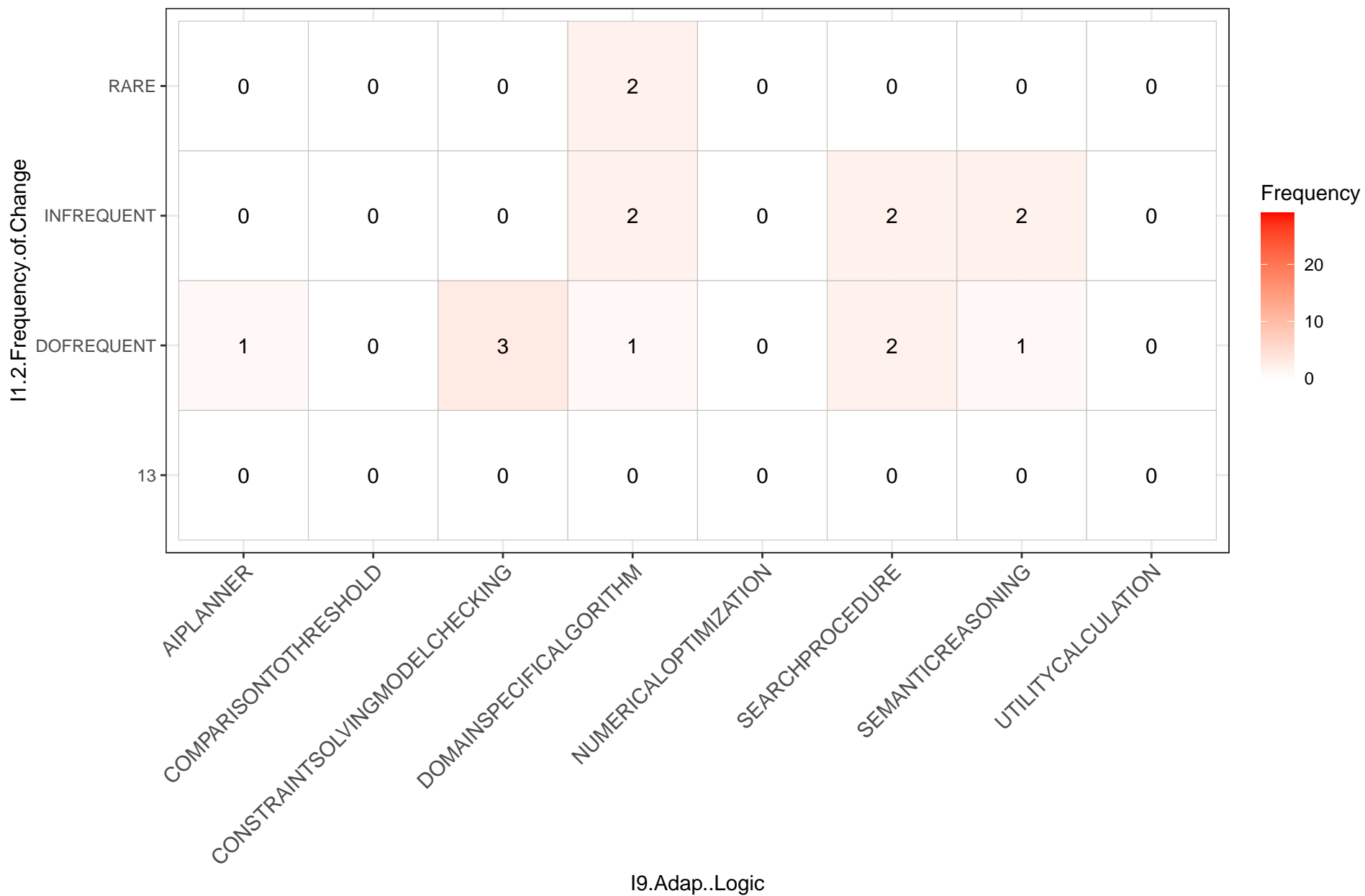
I1.2.Frequency.of.Change_____Experiment.Method



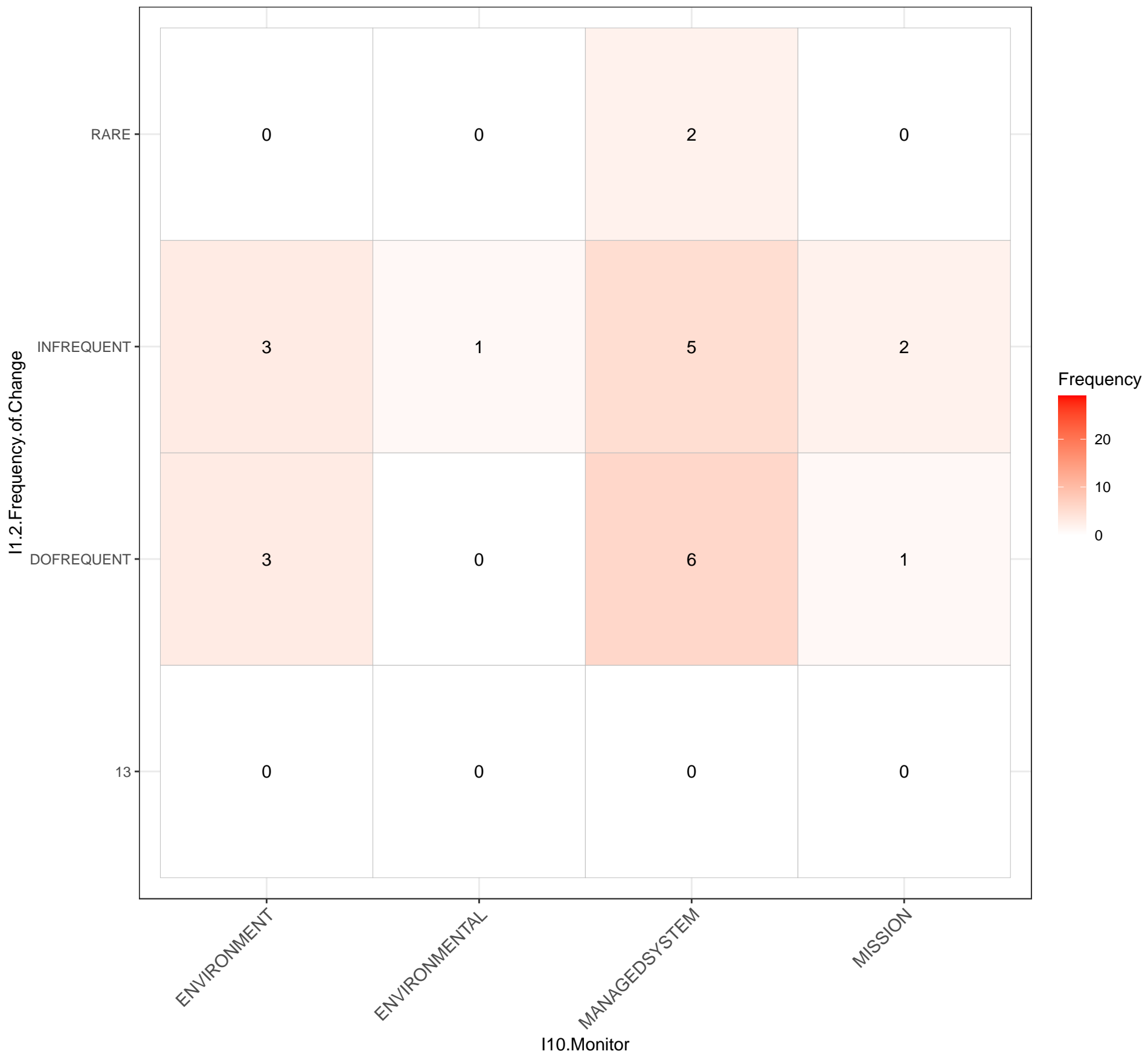
I1.2.Frequency.of.Change_____I8.Evaluation



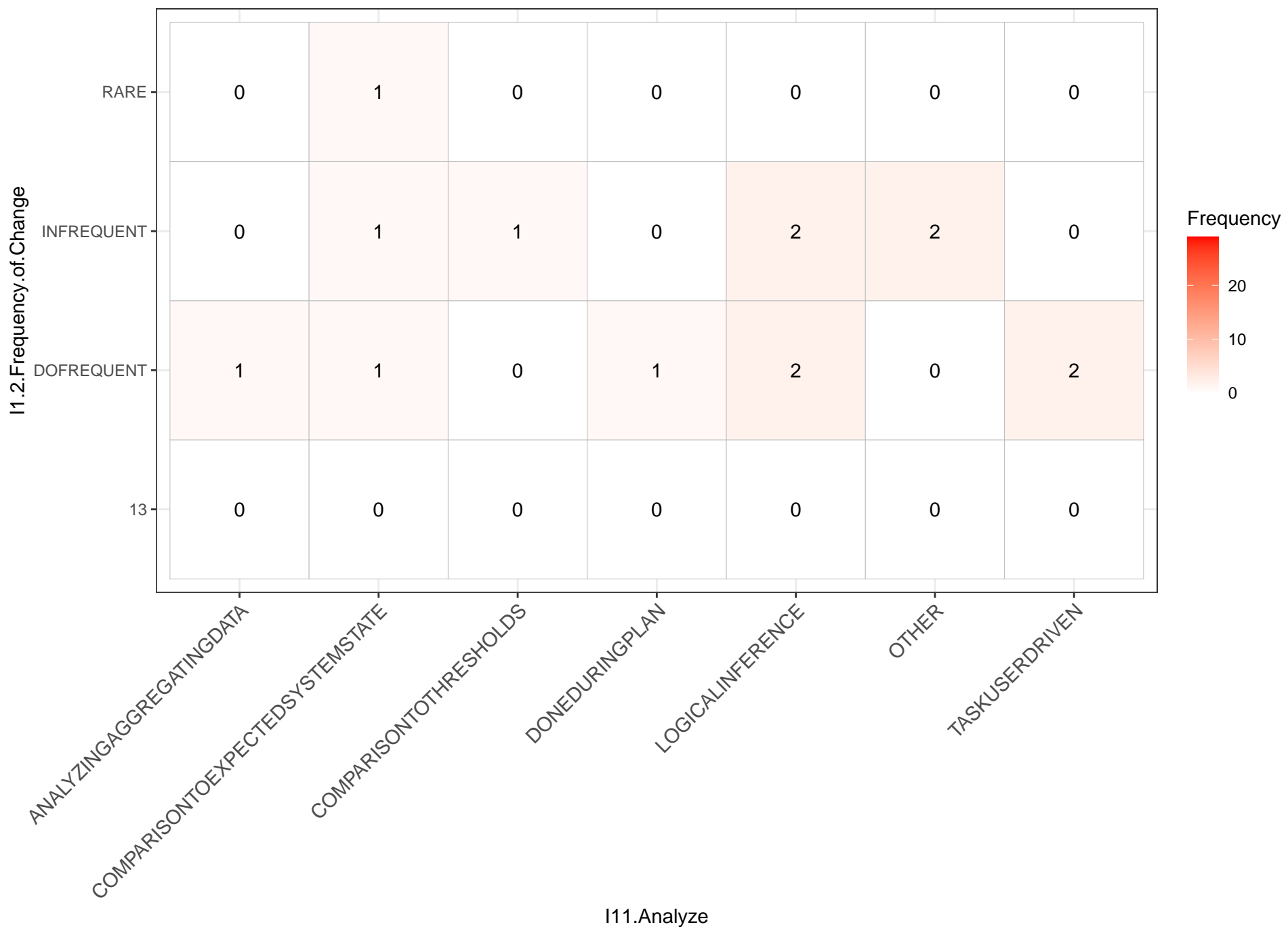
11.2.Frequency.of.Change_____19.Adap..Logic



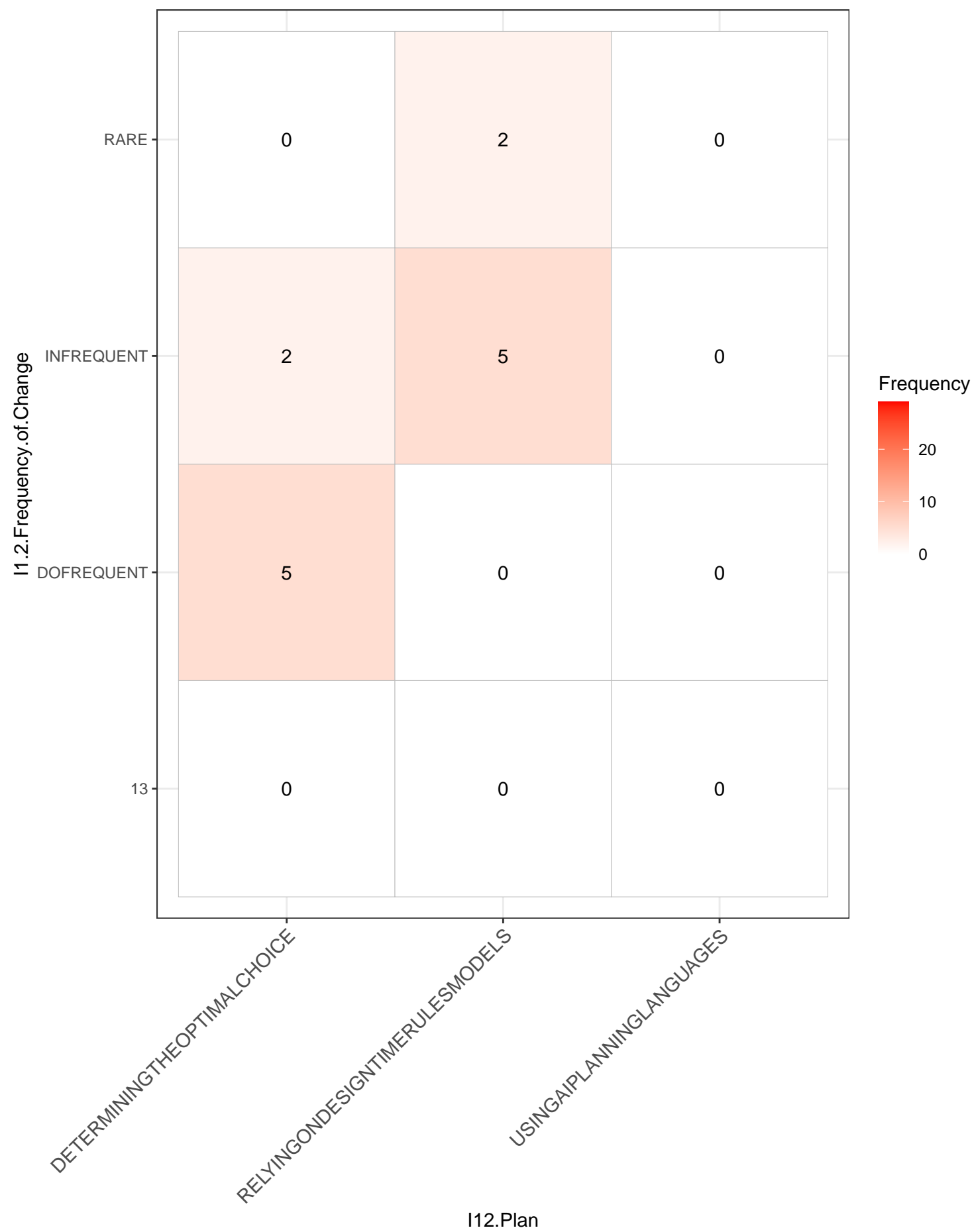
I1.2.Frequency.of.Change_____I10.Monitor

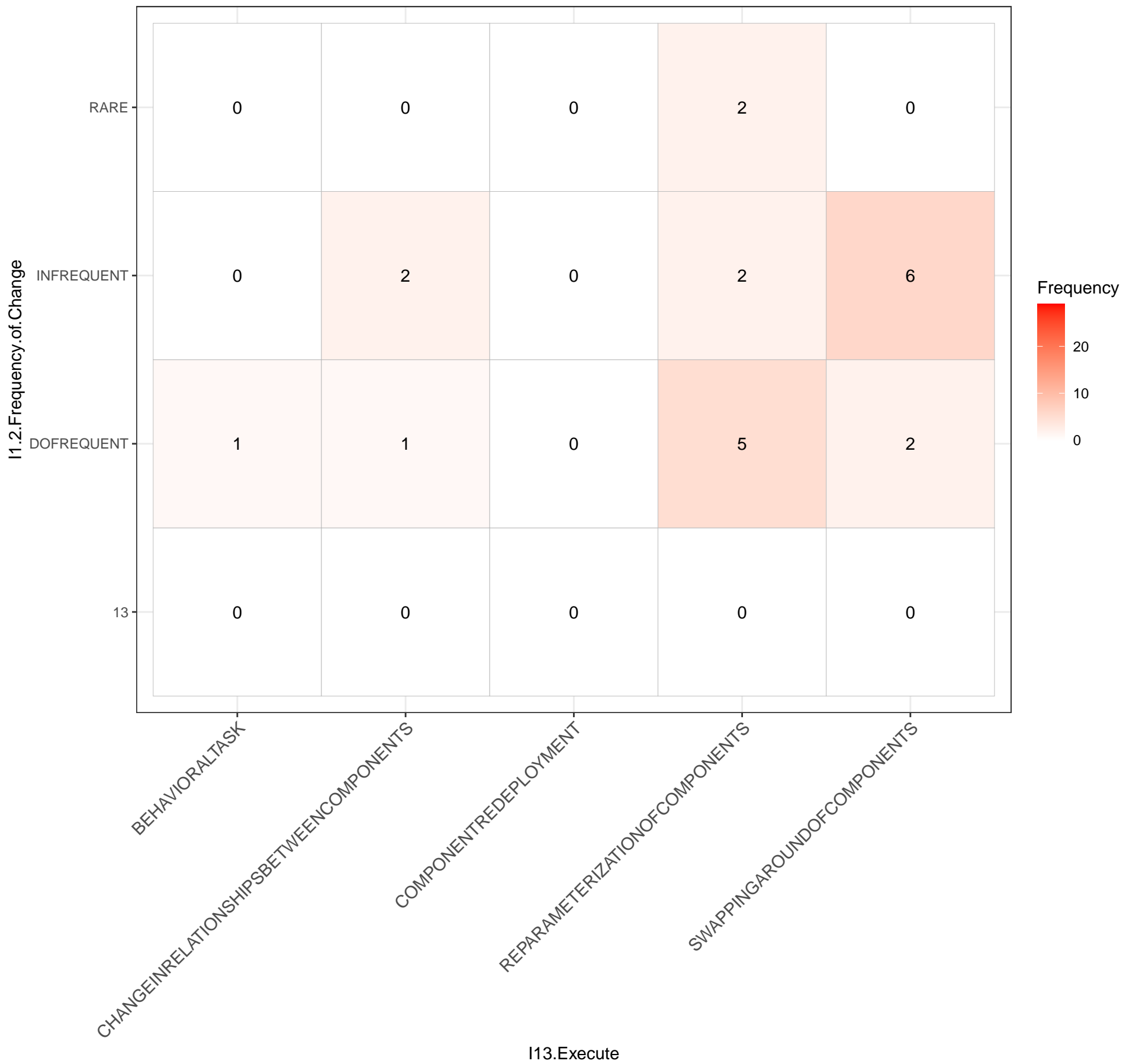


I1.2.Frequency.of.Change_____I11.Analyze

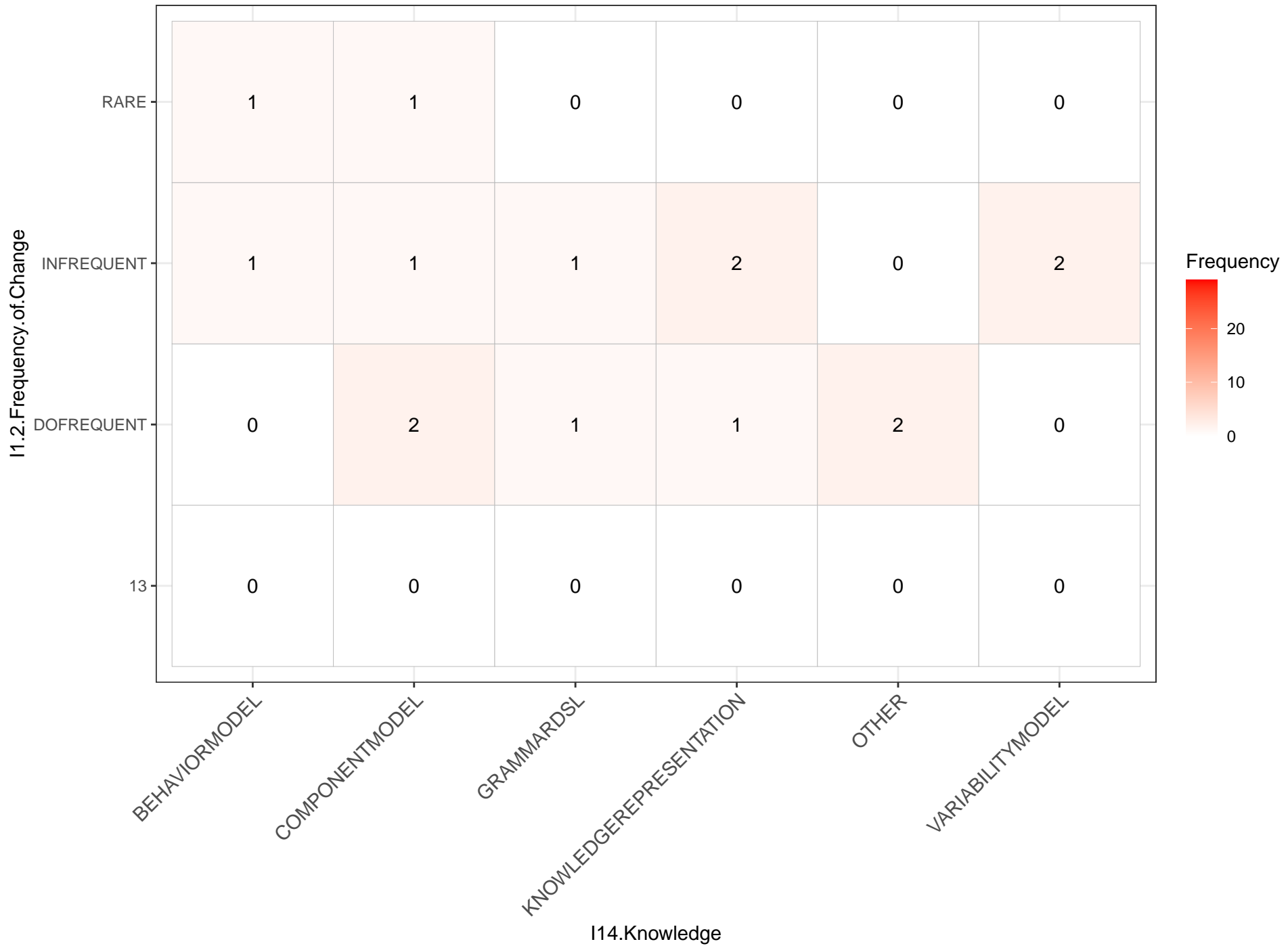


I1.2.Frequency.of.Change_____I12.Plan





I1.2.Frequency.of.Change_____I14.Knowledge



I1.3.Type.of.Mechanism_____I1.3.Organization.of.Mechanism

I1.3.Type.of.Mechanism

STRUCTURAL

3

21

PARAMETRIC

1

17

DECENTRALIZED

DOCENTRALIZED

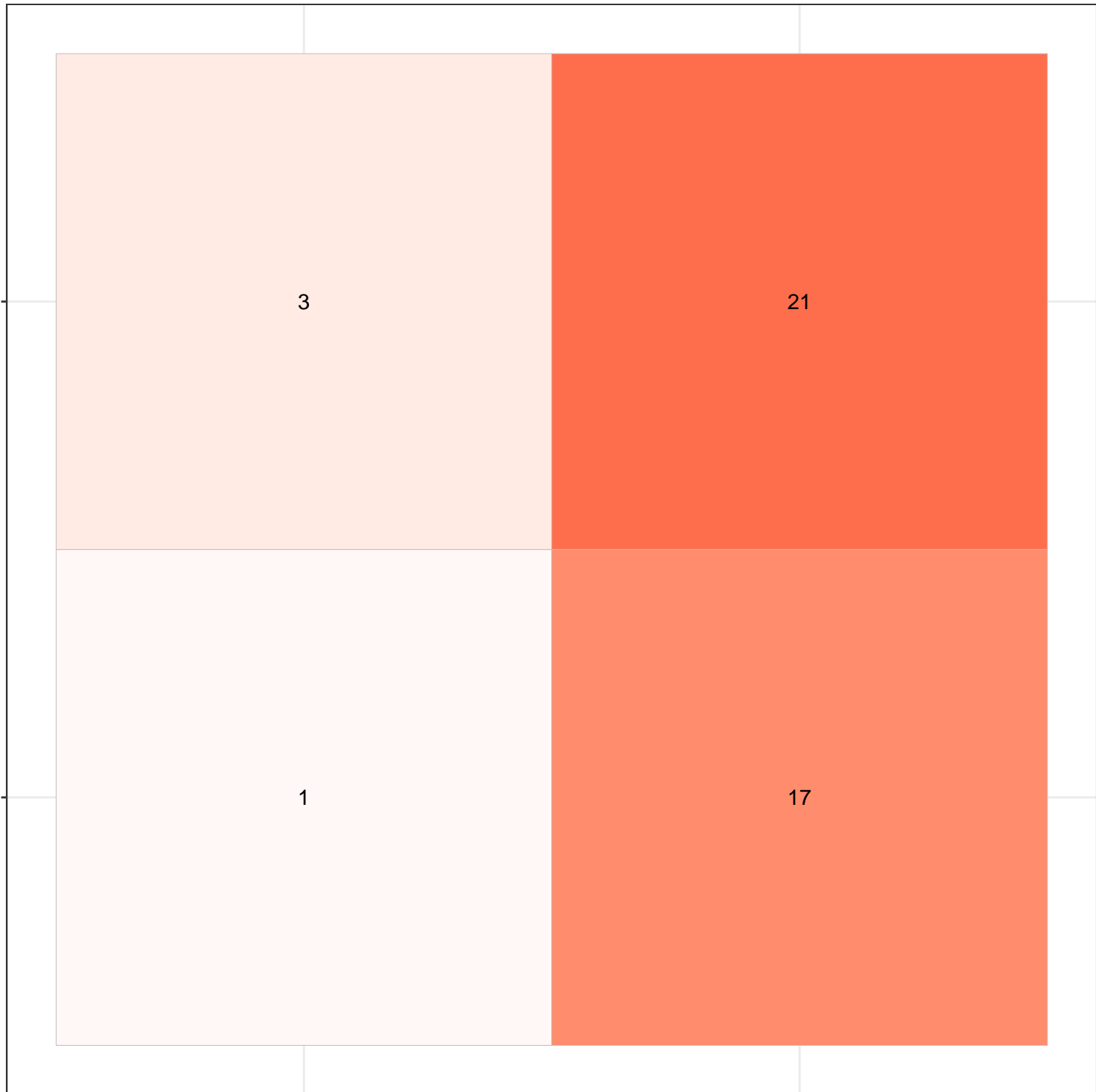
I1.3.Organization.of.Mechanism

Frequency

20

10

0



I1.3.Type.of.Mechanism_____I1.3.Scope.of.Mechanism

I1.3.Type.of.Mechanism

STRUCTURAL

7

20

PARAMETRIC

7

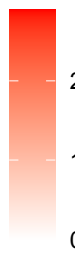
16

GLOBAL

LOCAL

I1.3.Scope.of.Mechanism

Frequency



I1.3.Type.of.Mechanism____I1.3.Duration.of.Mechanism

I1.3.Type.of.Mechanism

STRUCTURAL

17

1

3

PARAMETRIC

12

0

4

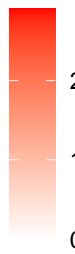
DOSHORT

MEDIUM

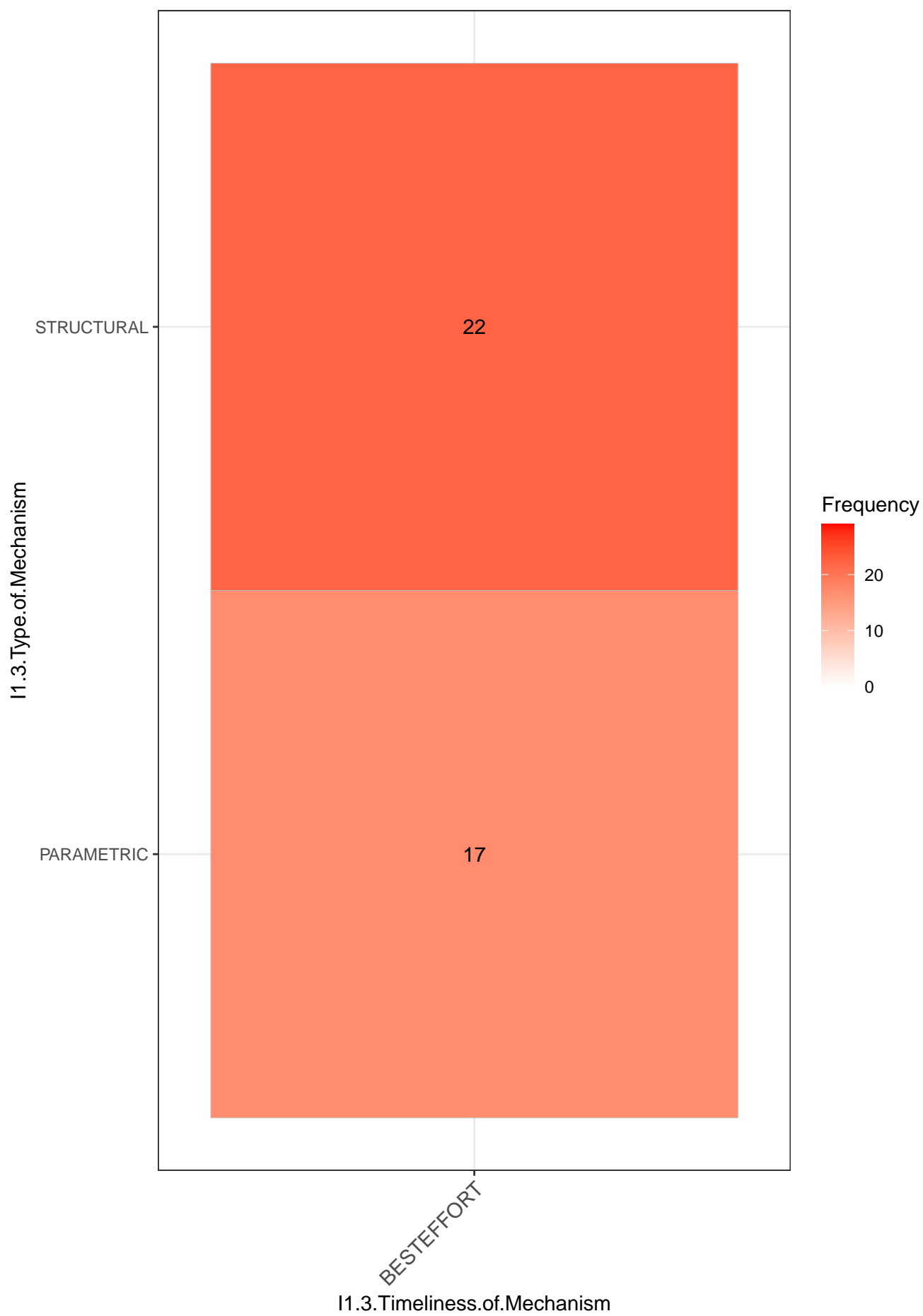
VERYSHORT

I1.3.Duration.of.Mechanism

Frequency



I1.3.Type.of.Mechanism_____I1.3.Timeliness.of.Mechanism



I1.3.Type.of.Mechanism_____I1.3.Trigger.of.Mechanism

I1.3.Type.of.Mechanism

STRUCTURAL

23

1

PARAMETRIC

15

2

EVENTTRIGGER

TIMETRIGGER

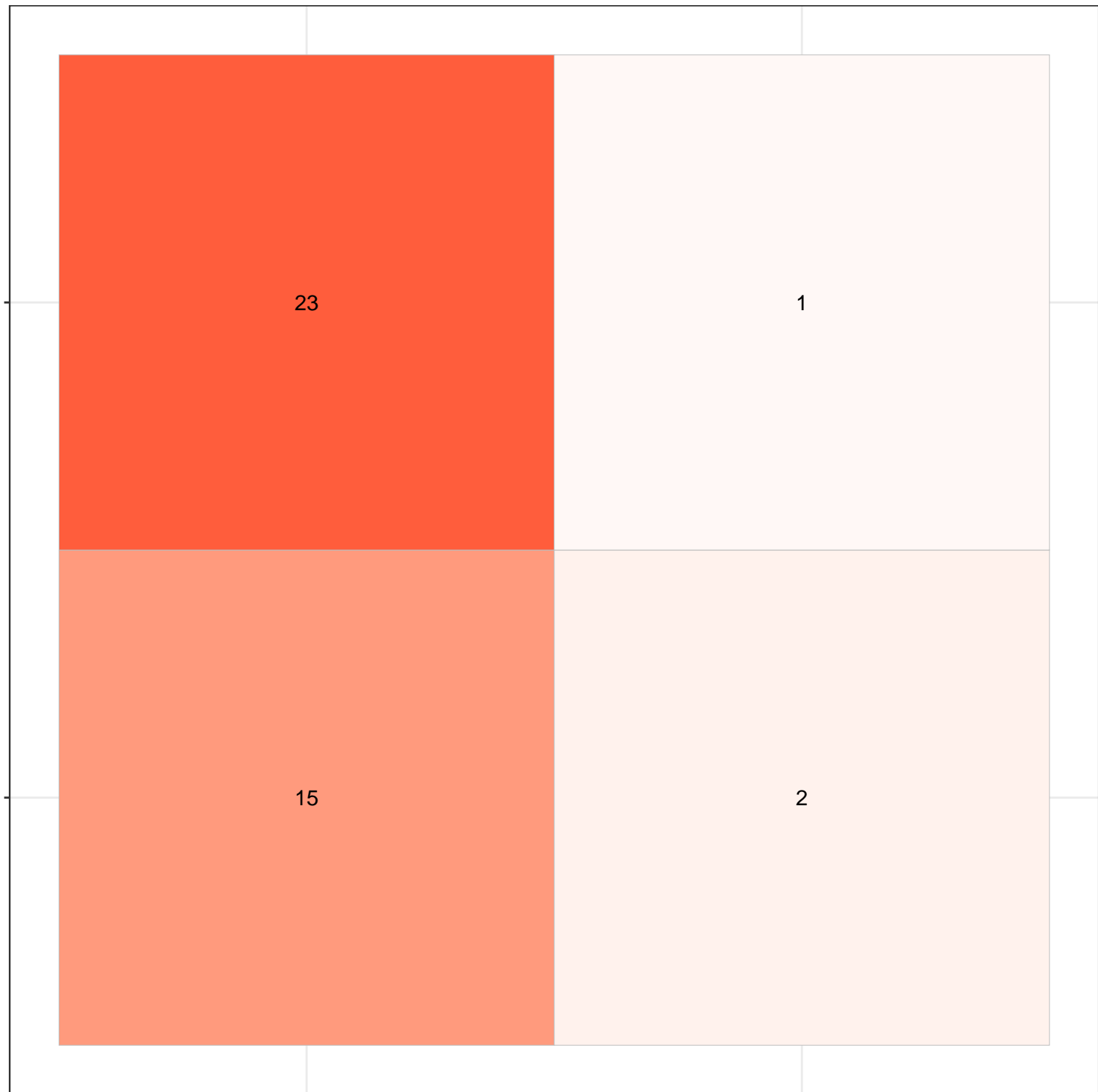
I1.3.Trigger.of.Mechanism

Frequency

20

10

0



I1.3.Type.of.Mechanism____I1.4.Criticality.of.Effects

I1.3.Type.of.Mechanism

STRUCTURAL

17

5

PARAMETRIC

12

4

MISSIONCRITICAL

SAFETYCRITICAL

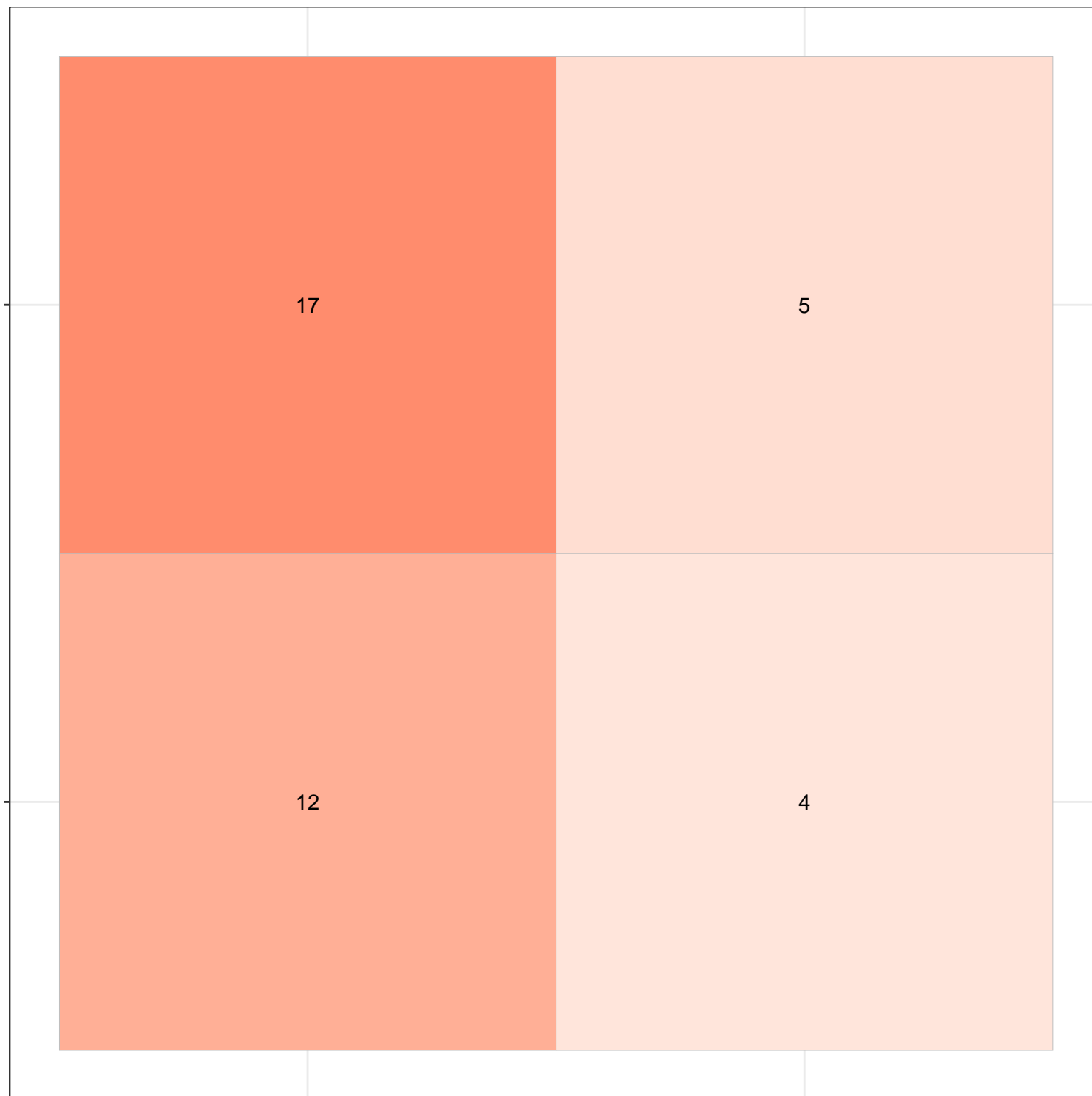
I1.4.Criticality.of.Effects

Frequency

20

10

0



I1.3.Type.of.Mechanism_____I1.4.Predictability.of.Effects

I1.3.Type.of.Mechanism

STRUCTURAL

8

14

PARAMETRIC

5

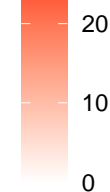
13

DODETERMINISTIC

NONDETERMINISTIC

I1.4.Predictability.of.Effects

Frequency



I1.3.Type.of.Mechanism_____I1.4.Overhead.of.Effects

I1.3.Type.of.Mechanism

STRUCTURAL

14

2

4

PARAMETRIC

9

3

2

DEPENDENT

DOSIGNIFICANT

INSIGNIFICANT

I1.4.Overhead.of.Effects

Frequency

20

10

0

I1.3.Type.of.Mechanism_____I1.4.Resilience.of.Effects

I1.3.Type.of.Mechanism

STRUCTURAL

PARAMETRIC

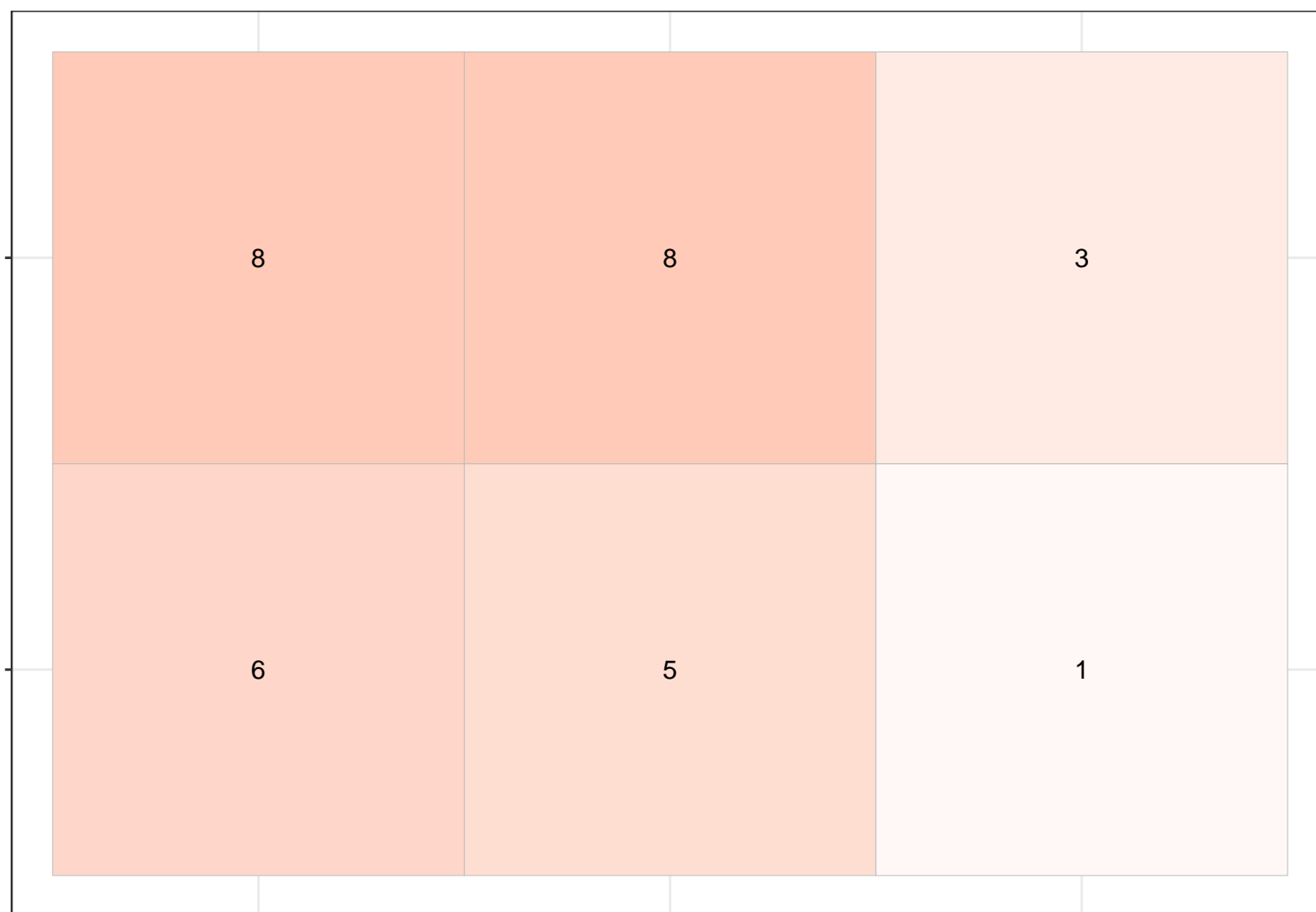
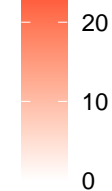
DEPENDENT

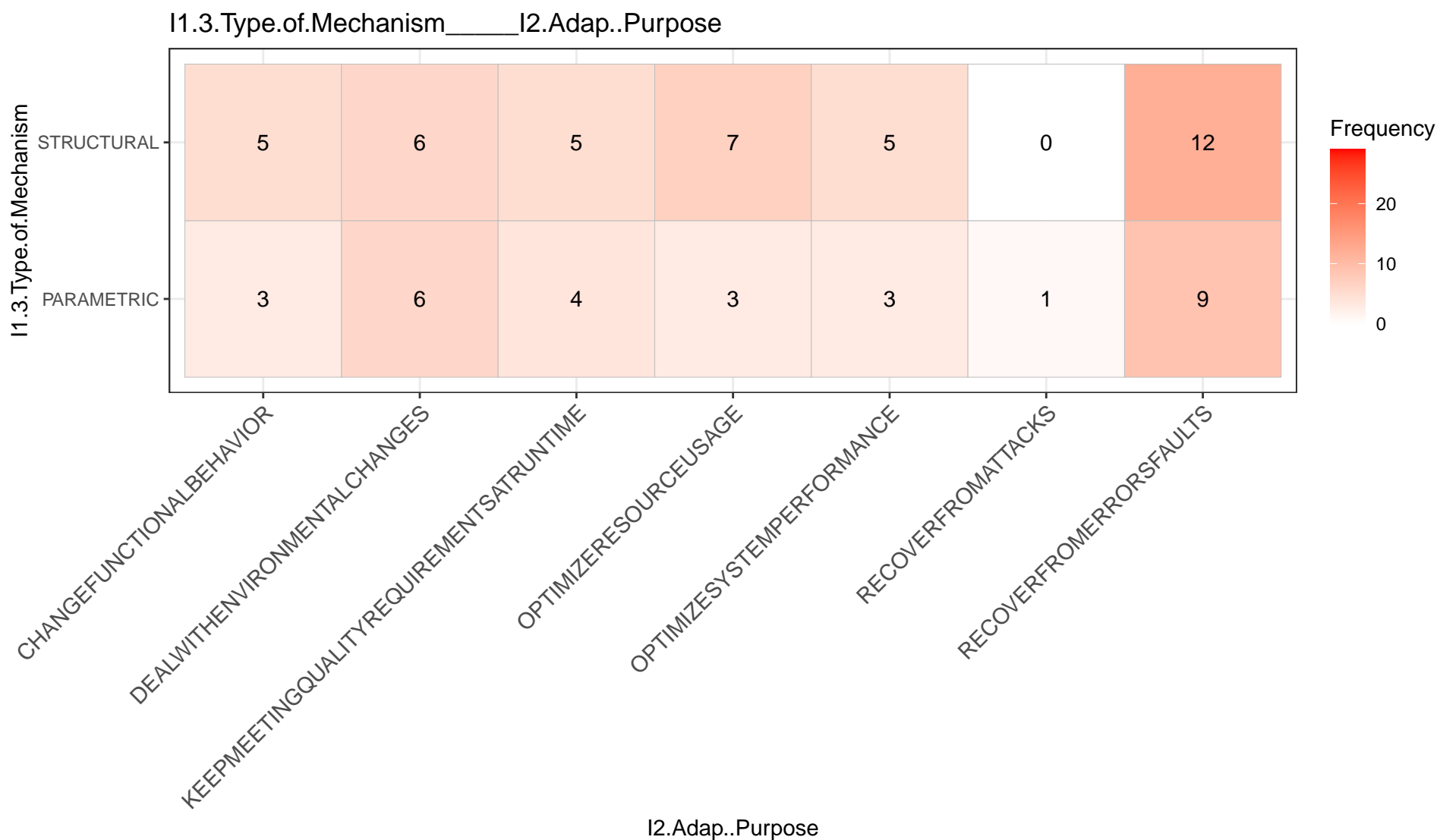
DORESILIENT

IRRESILIENT

I1.4.Resilience.of.Effects

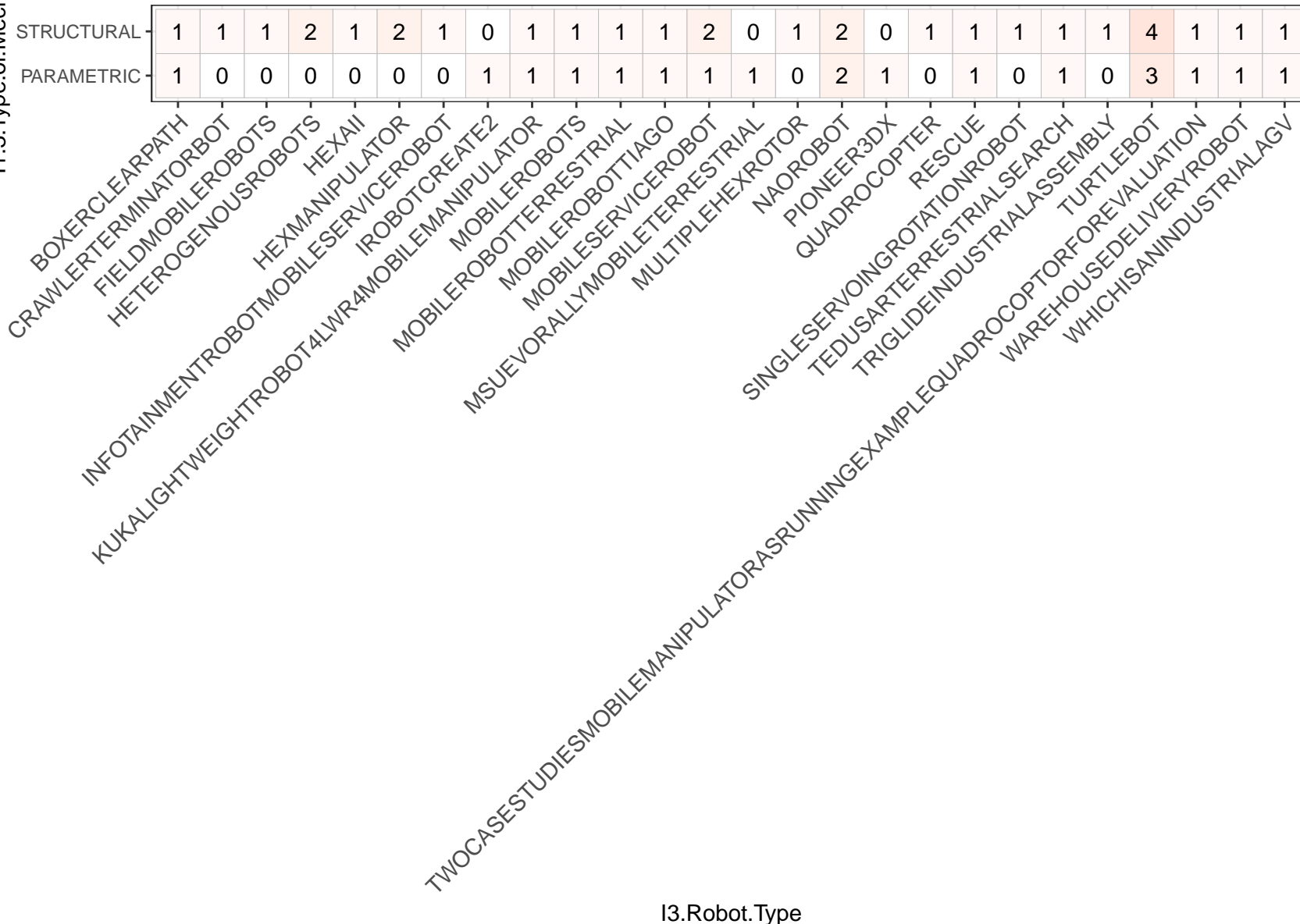
Frequency





I1.3.Type.of.Mechanism

I1.3.Type.of.Mechanism_____I3.Robot.Type



Frequency

20

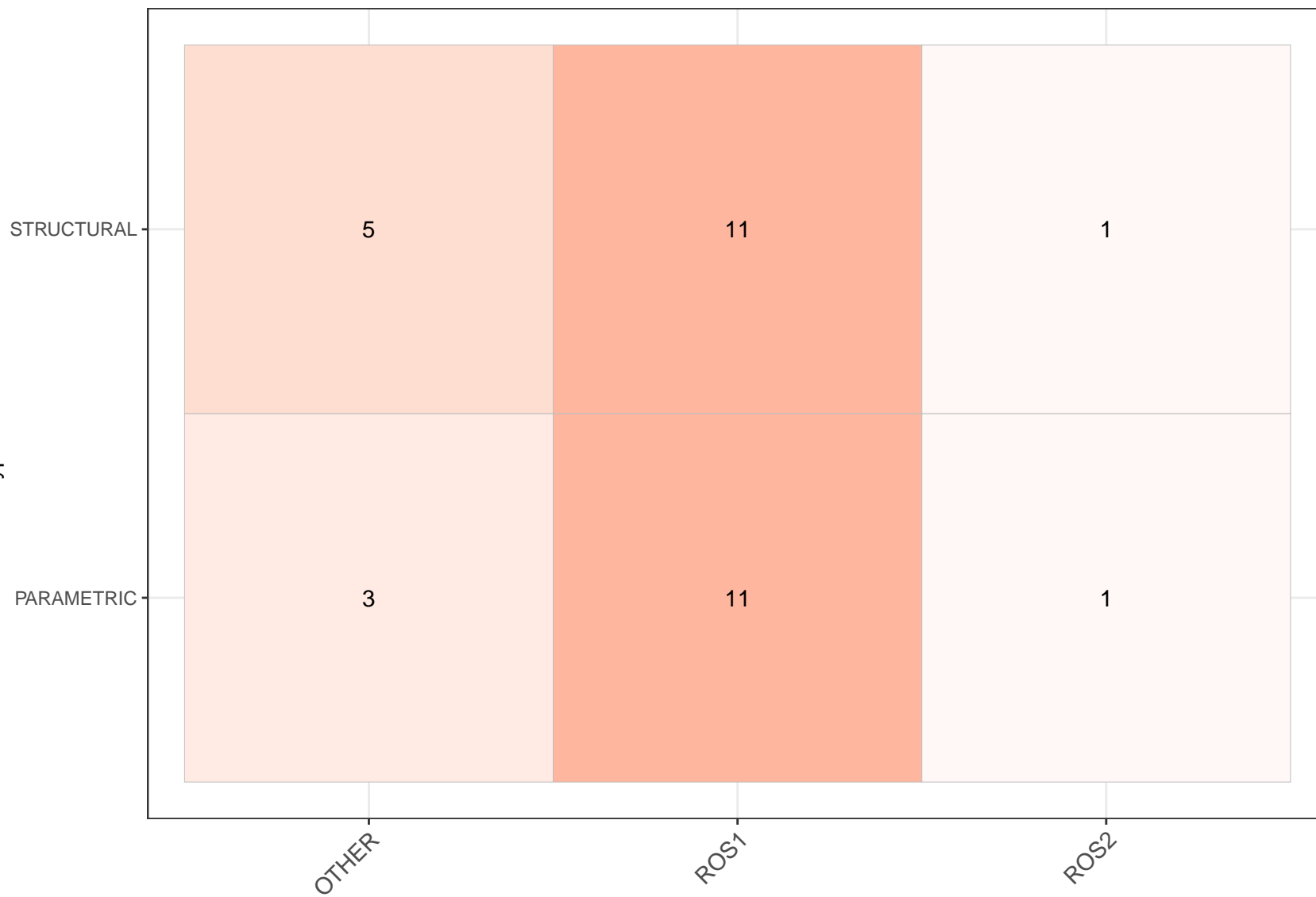
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0

I3.Robot.Type

I1.3.Type.of.Mechanism____I4.Robo.SW

I1.3.Type.of.Mechanism



PARAMETRIC

STRUCTURAL

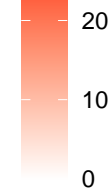
OTHER

ROS1

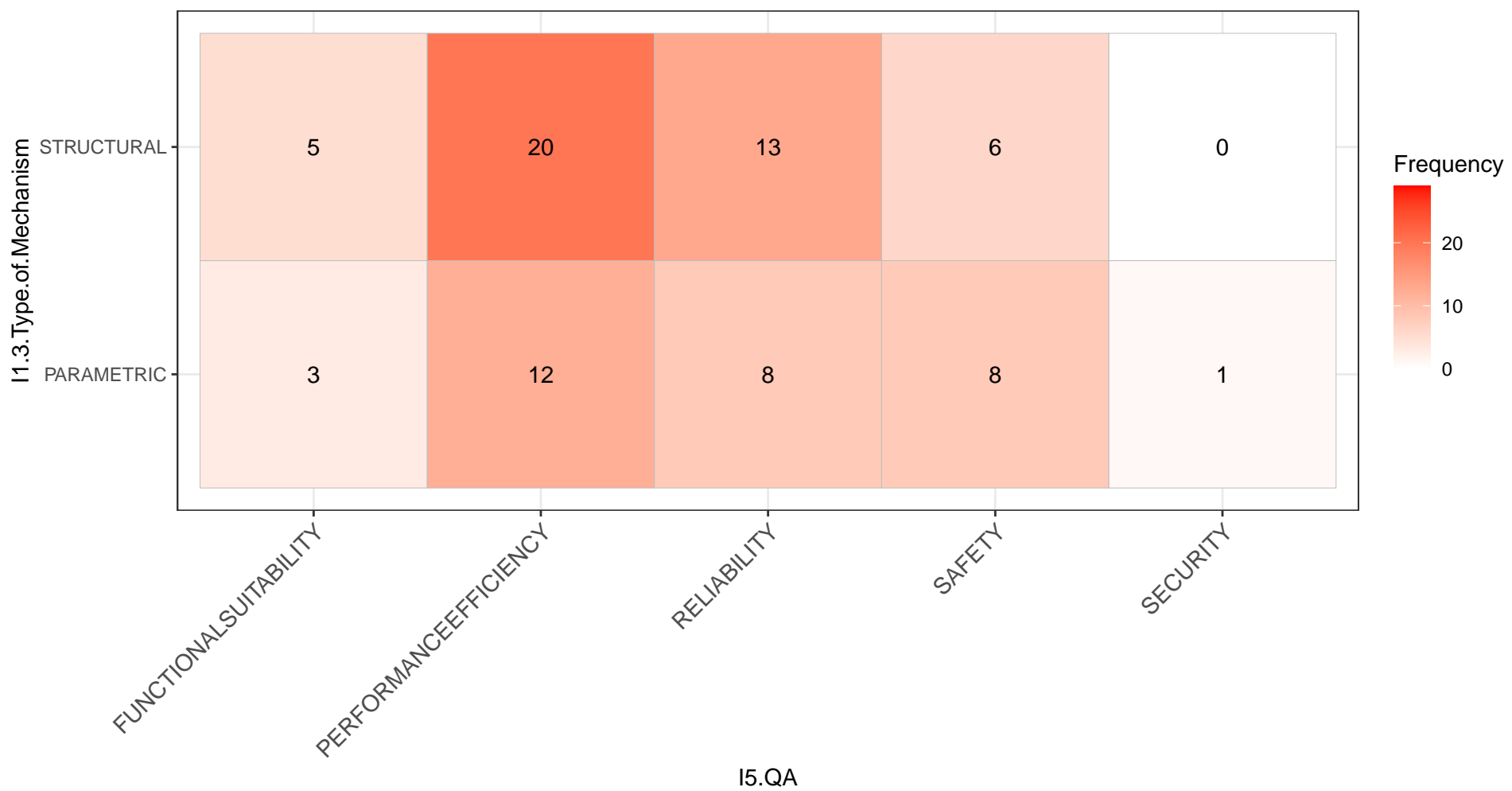
ROS2

I4.Robo.SW

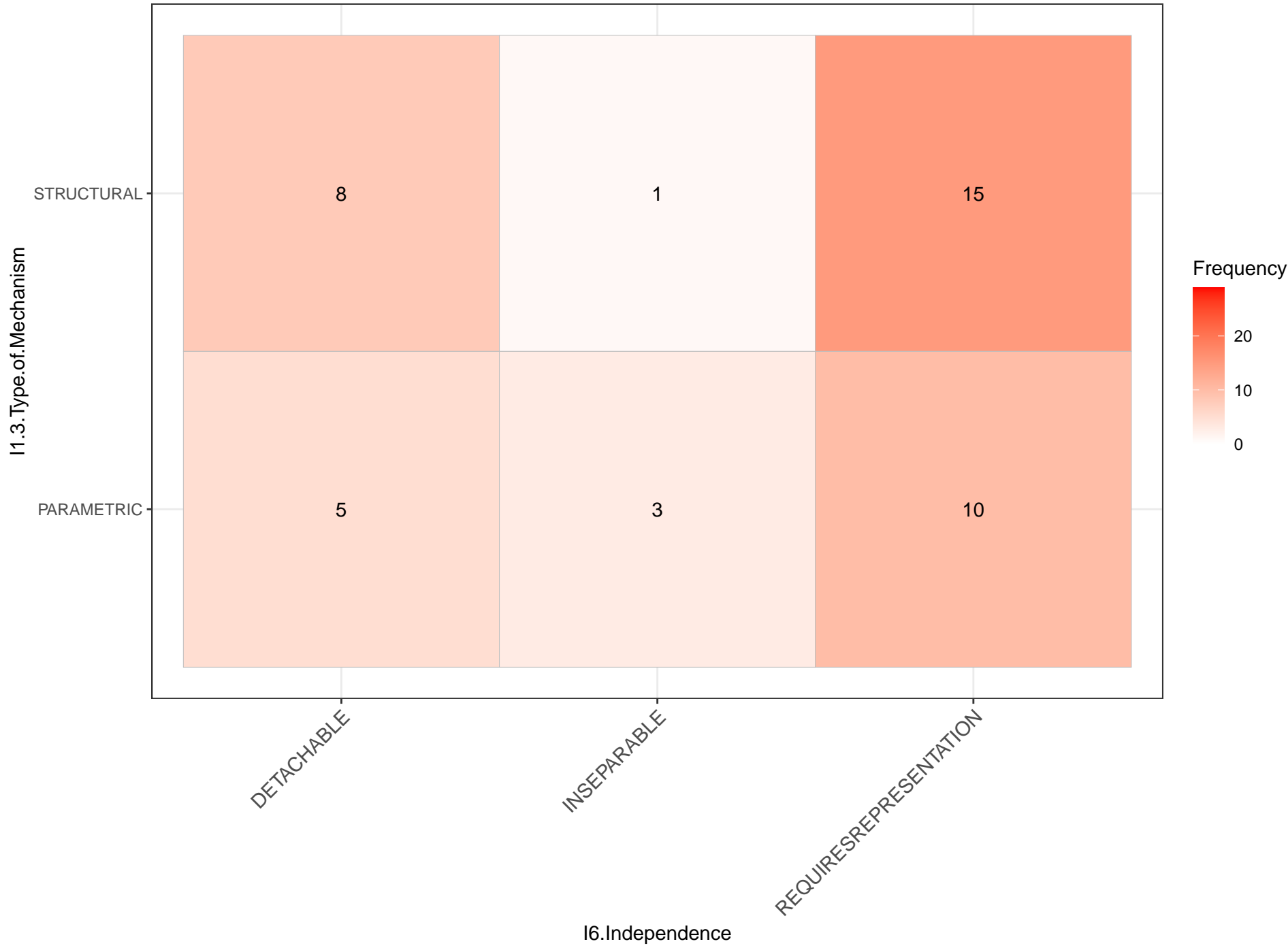
Frequency



I1.3.Type.of.Mechanism_____I5.QA



I1.3.Type.of.Mechanism_____I6.Independence



I1.3.Type.of.Mechanism____I7.Deployment.Realness

I1.3.Type.of.Mechanism

STRUCTURAL

PARAMETRIC

REAL

SIMULATED

I7.Deployment.Realness

Frequency



20

10

0

10

10

9

7

I1.3.Type.of.Mechanism____I7.Mission.Realness

I1.3.Type.of.Mechanism

STRUCTURAL

13

11

PARAMETRIC

7

11

REAL

SYNTHETIC

I7.Mission.Realness

Frequency

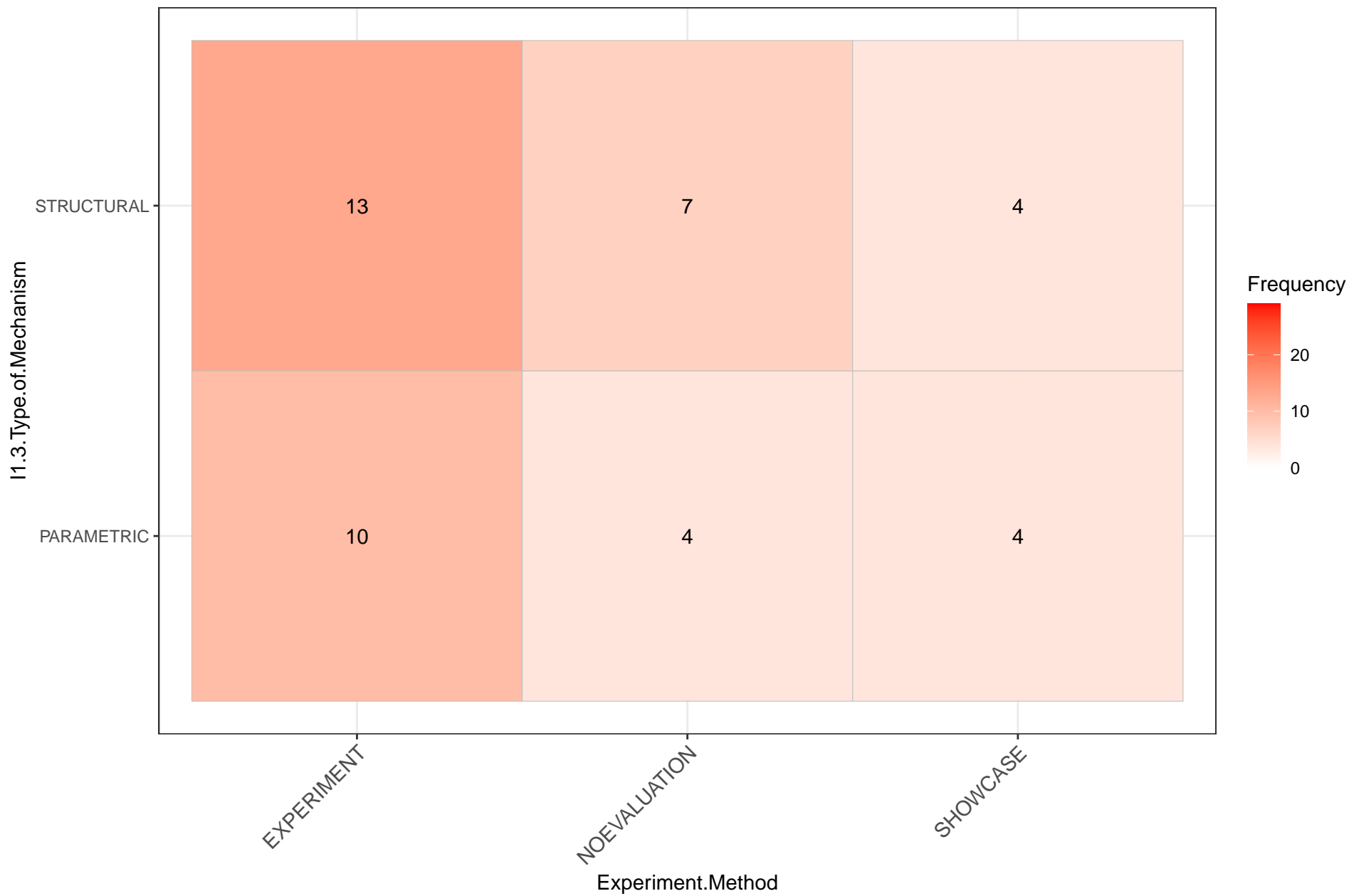


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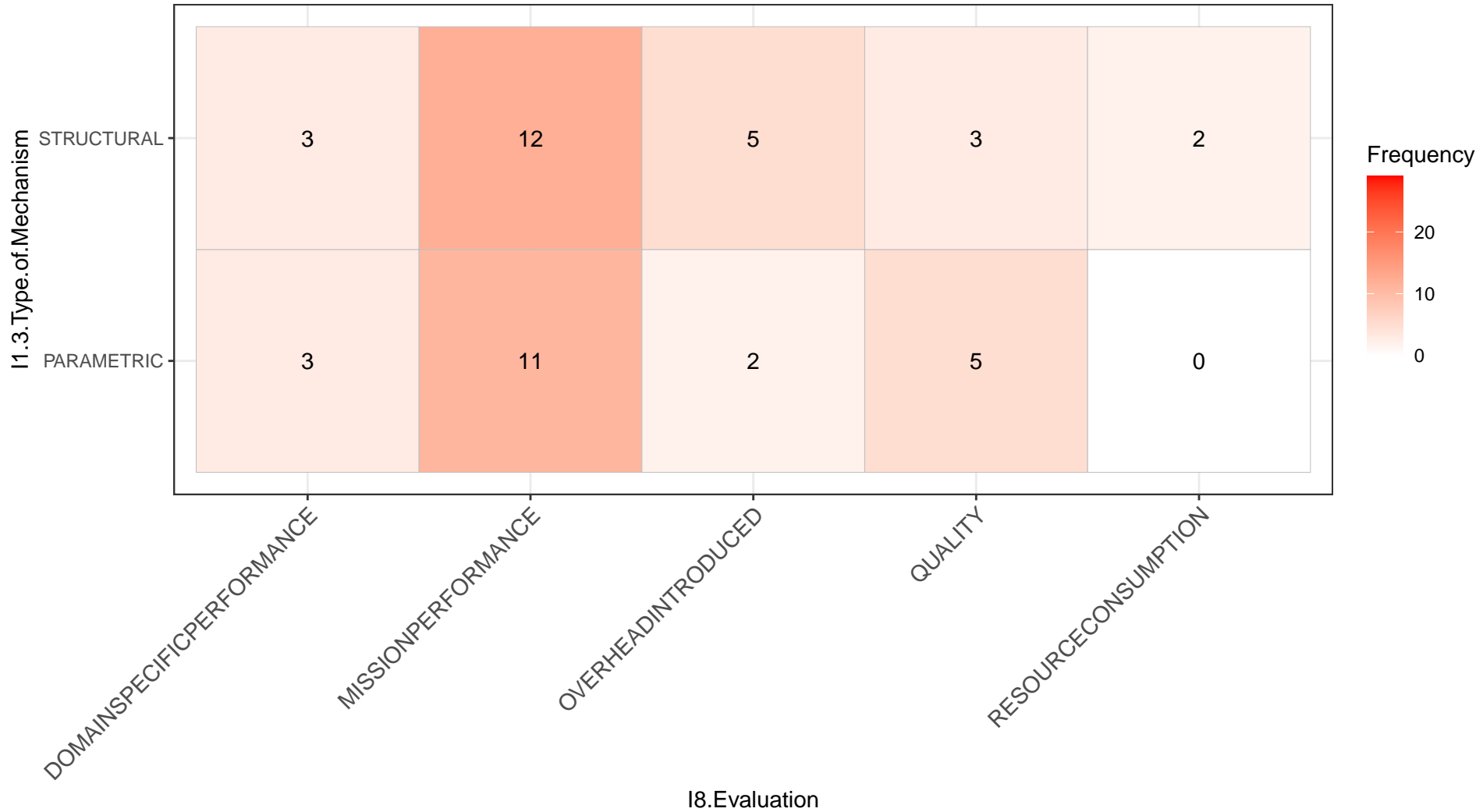
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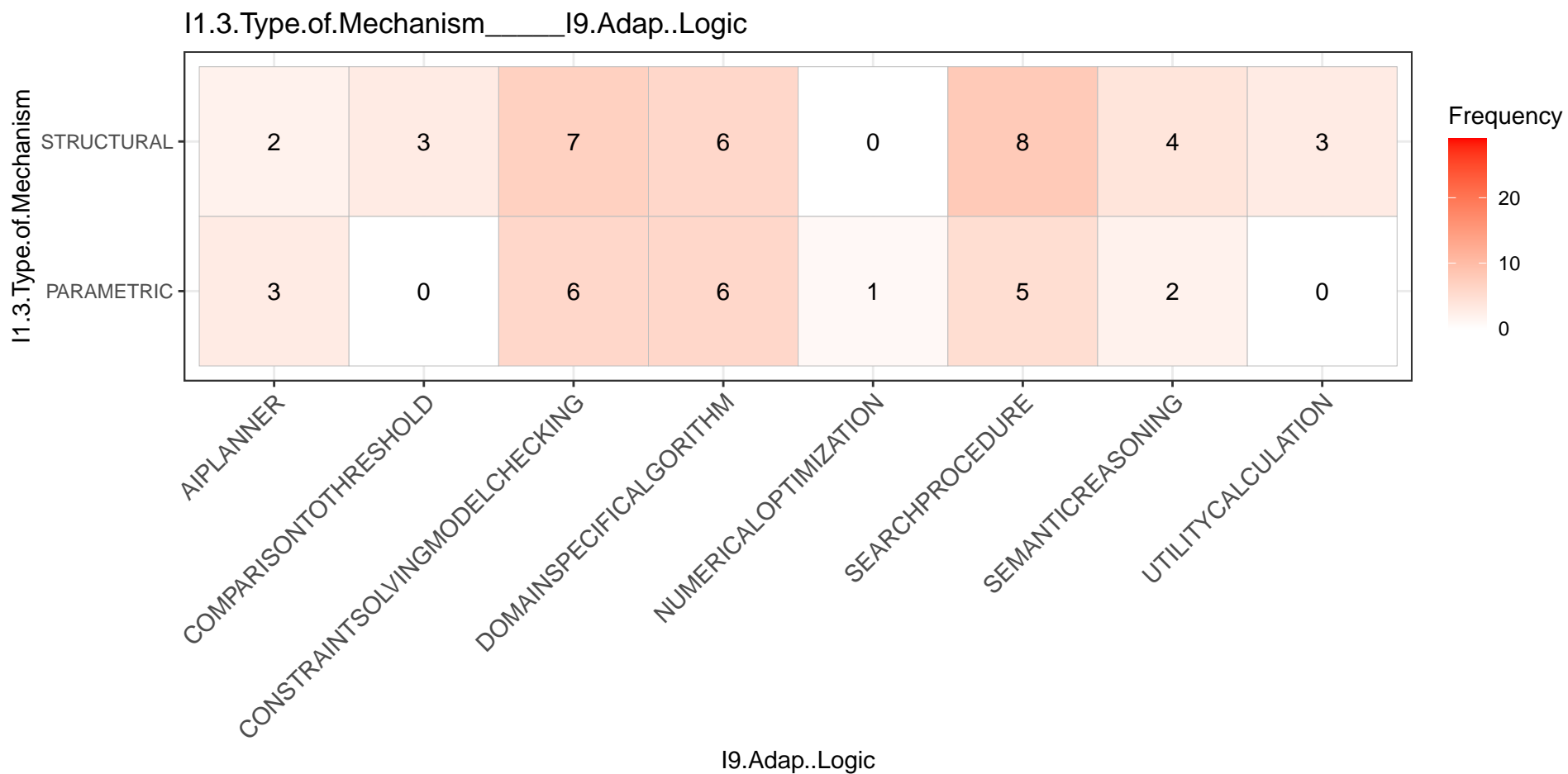
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I1.3.Type.of.Mechanism_____Experiment.Method

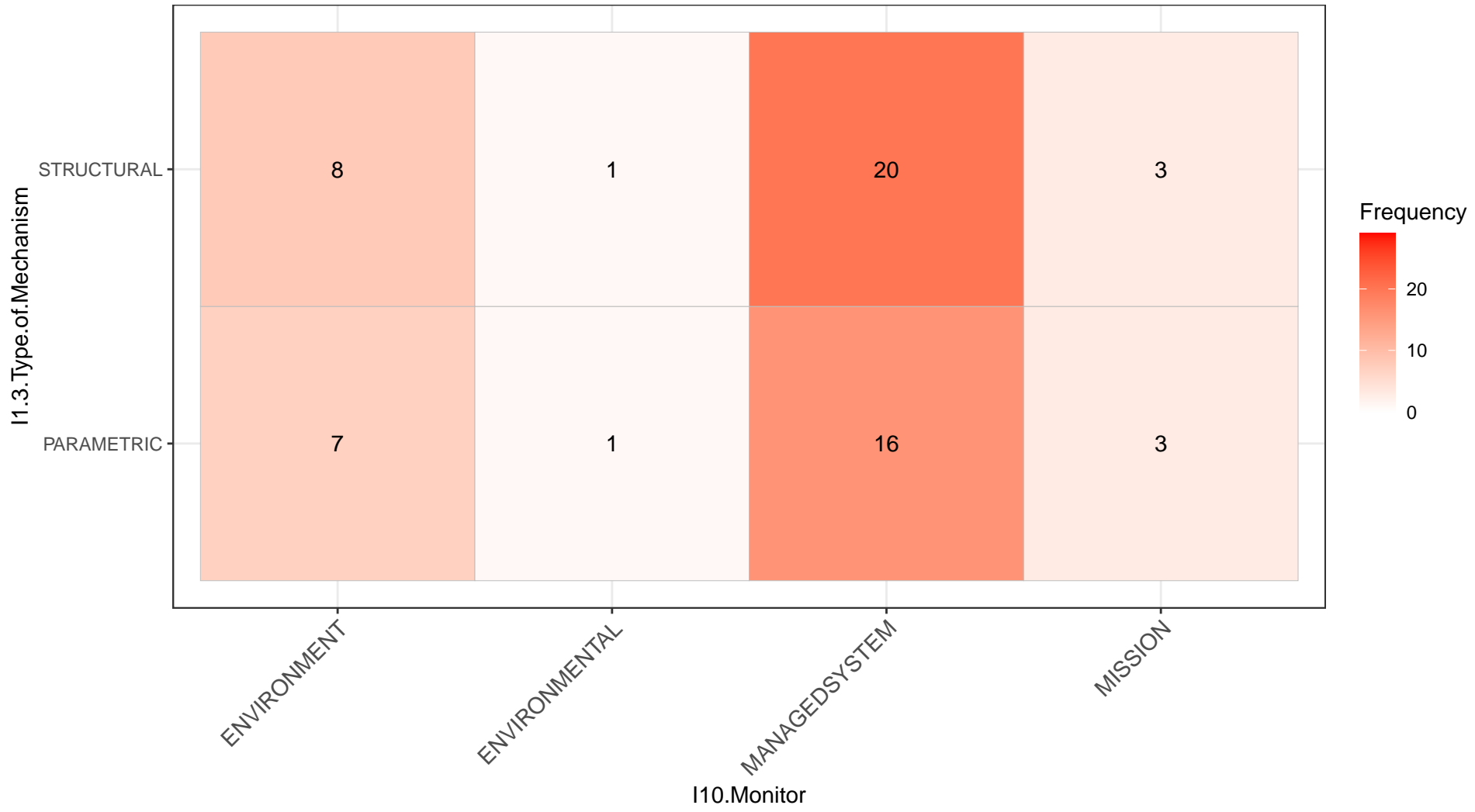


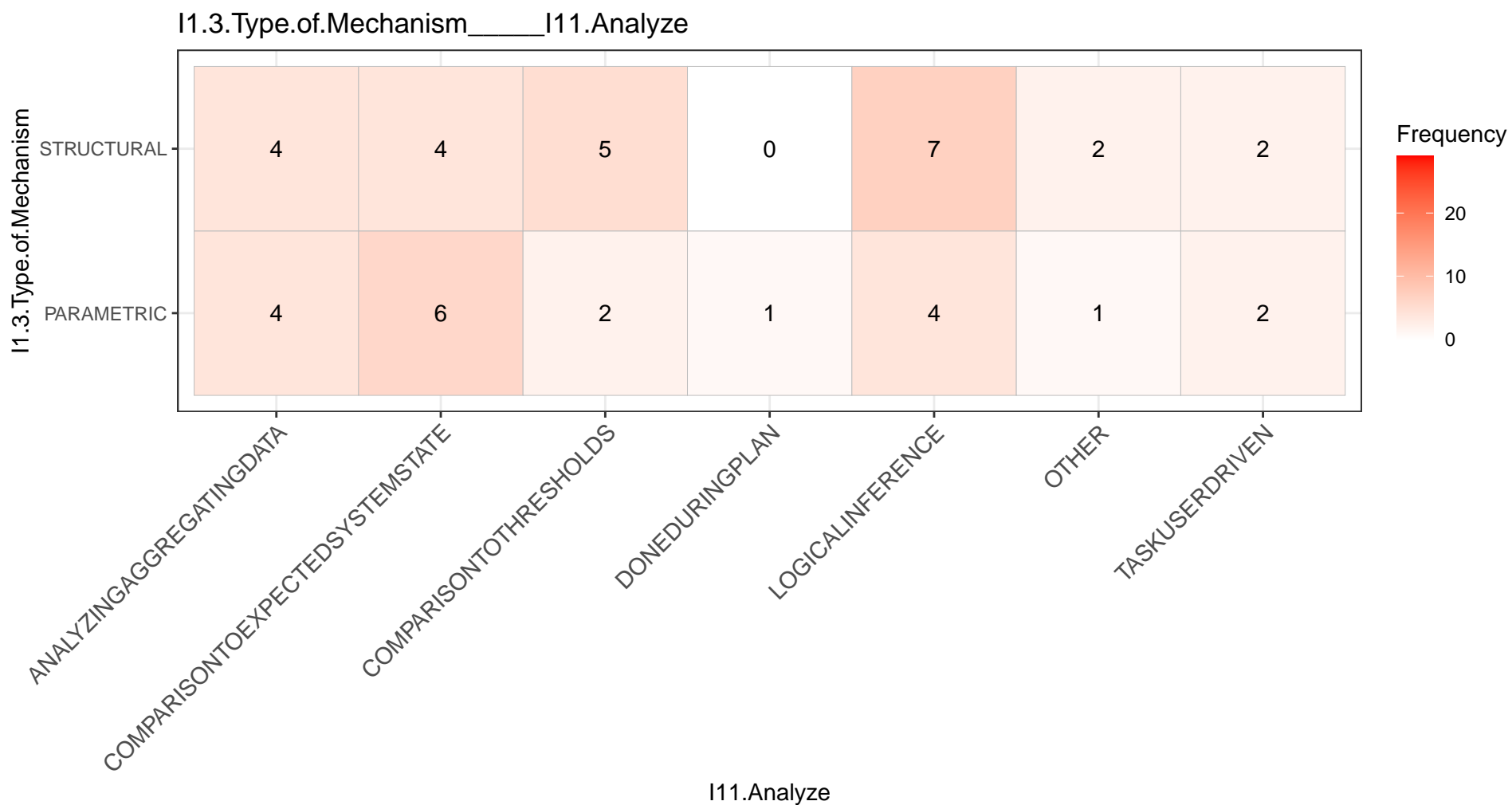
I1.3.Type.of.Mechanism_____I8.Evaluation





I1.3.Type.of.Mechanism____I10.Monitor





I1.3.Type.of.Mechanism_____I12.Plan

I1.3.Type.of.Mechanism

STRUCTURAL

11

11

1

PARAMETRIC

7

8

2

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPLANNINGLANGUAGES

I12.Plan

Frequency

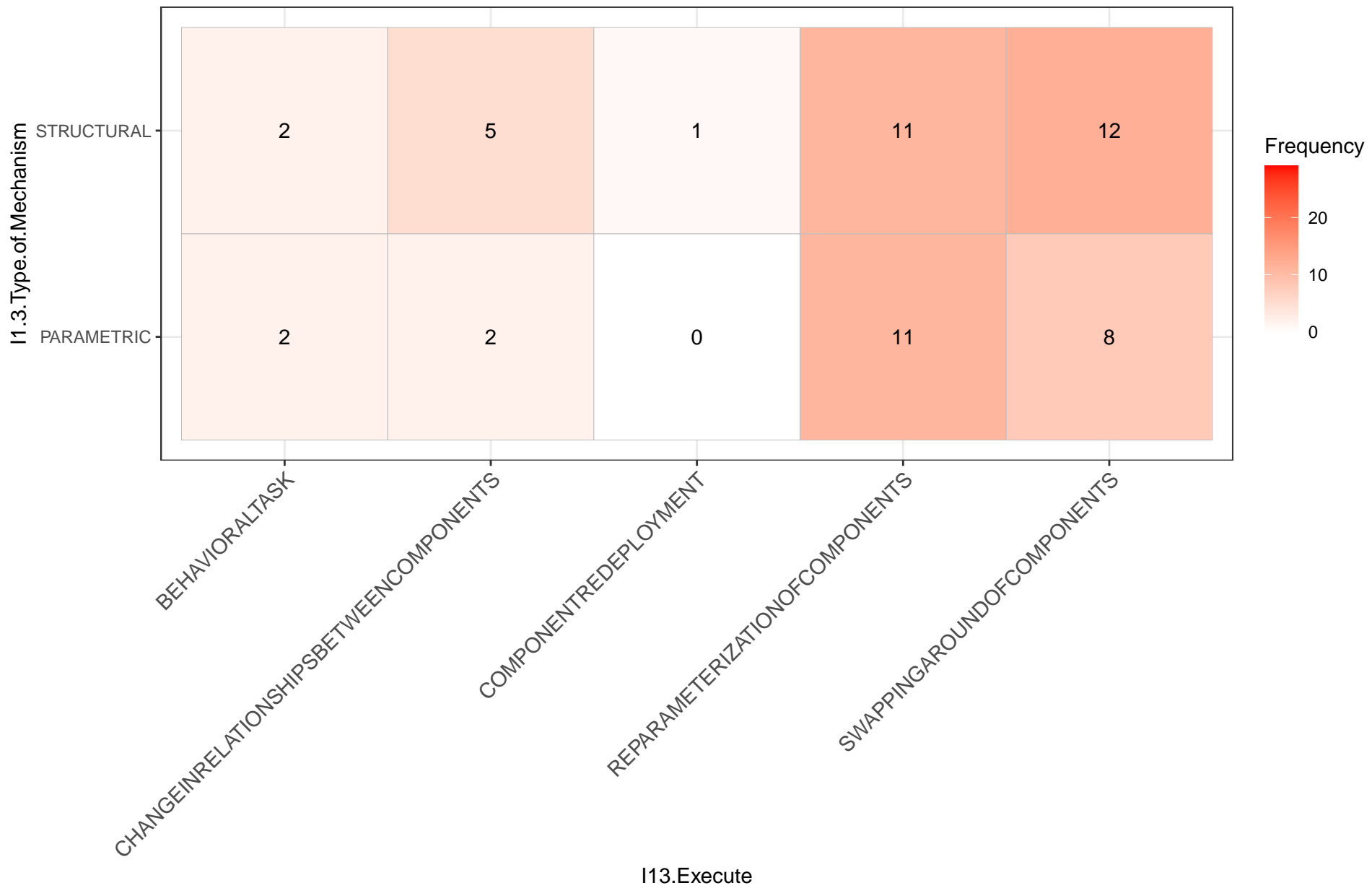


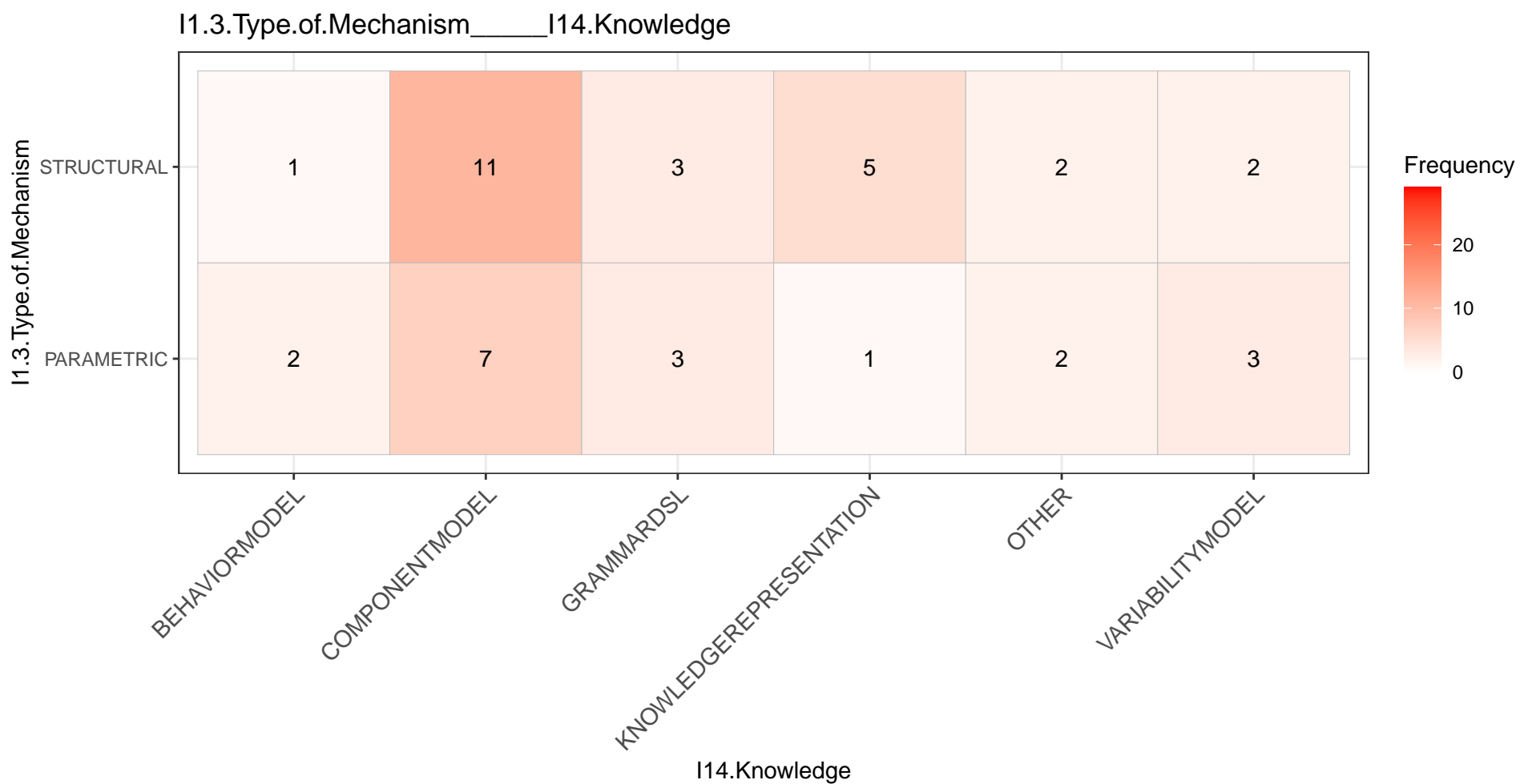
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10

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I1.3.Type.of.Mechanism____I13.Execute





I1.3.Organization.of.Mechanism_____I1.3.Scope.of.Mechanism

I1.3.Organization.of.Mechanism

DOCENTRALIZED

8

21

DECENTRALIZED

0

3

GLOBAL

LOCAL

I1.3.Scope.of.Mechanism

Frequency



I1.3.Organization.of.Mechanism_____I1.3.Duration.of.Mechanism

I1.3.Organization.of.Mechanism

DOCENTRALIZED

DECENTRALIZED

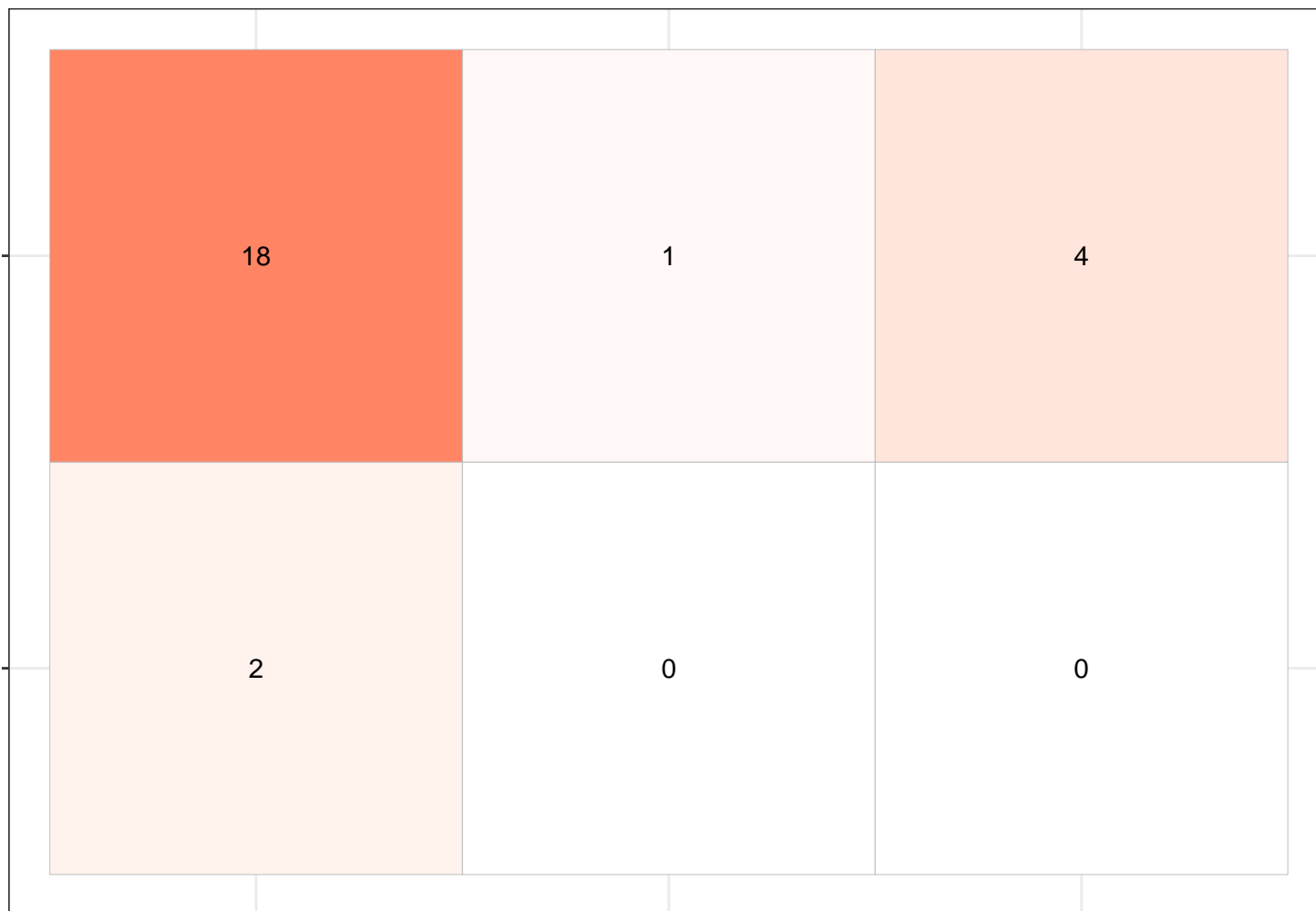
DOSHORT

MEDIUM

VERYSHORT

I1.3.Duration.of.Mechanism

Frequency



I1.3.Organization.of.Mechanism

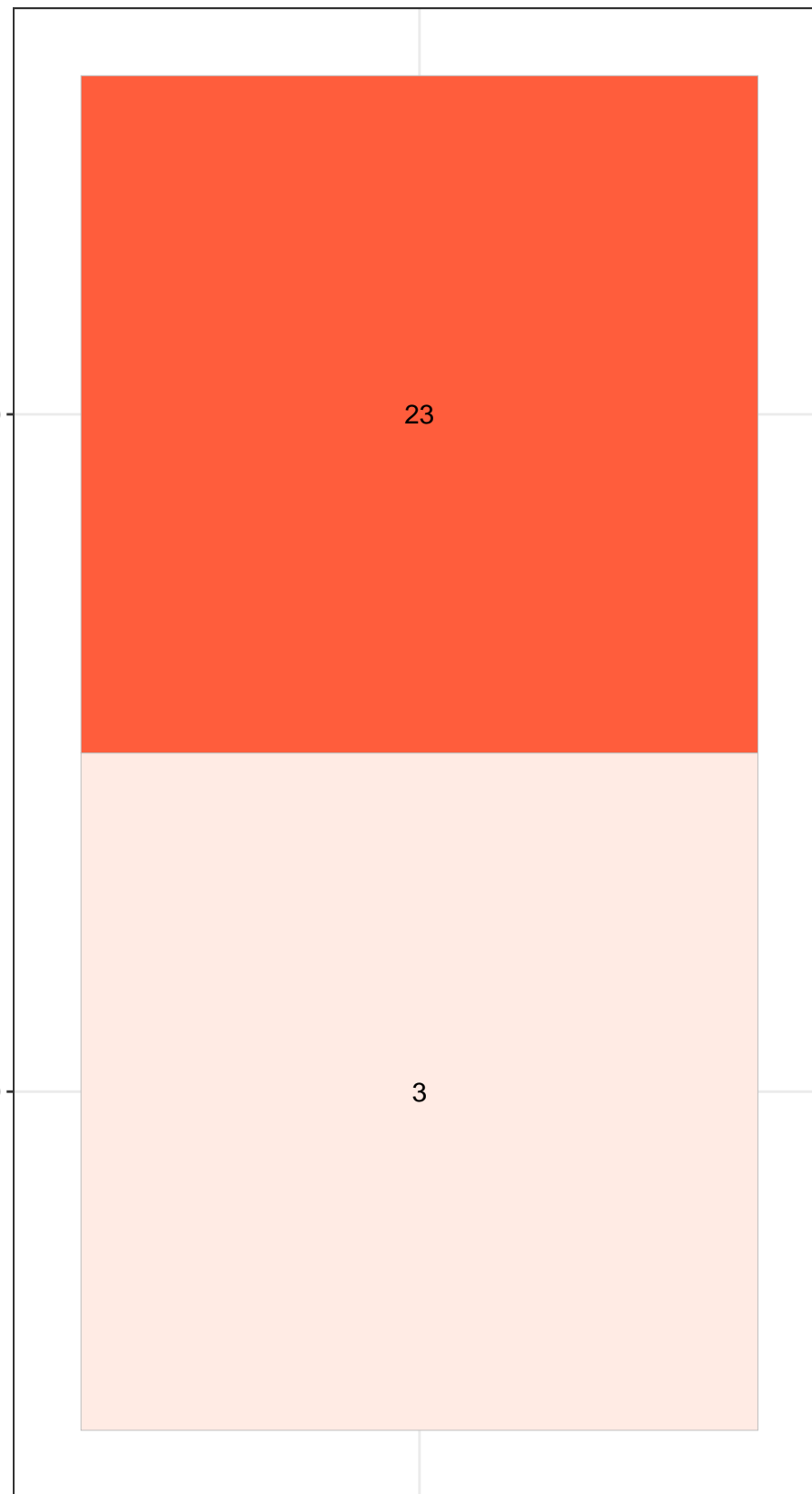
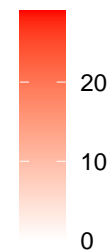
DOCENTRALIZED

DECENTRALIZED

BESTEFFECT

I1.3.Timeliness.of.Mechanism

Frequency



I1.3.Organization.of.Mechanism_____I1.3.Trigger.of.Mechanism

I1.3.Organization.of.Mechanism

DOCENTRALIZED

DECENTRALIZED

EVENTTRIGGER

TIMETRIGGER

I1.3.Trigger.of.Mechanism

Frequency

20

10

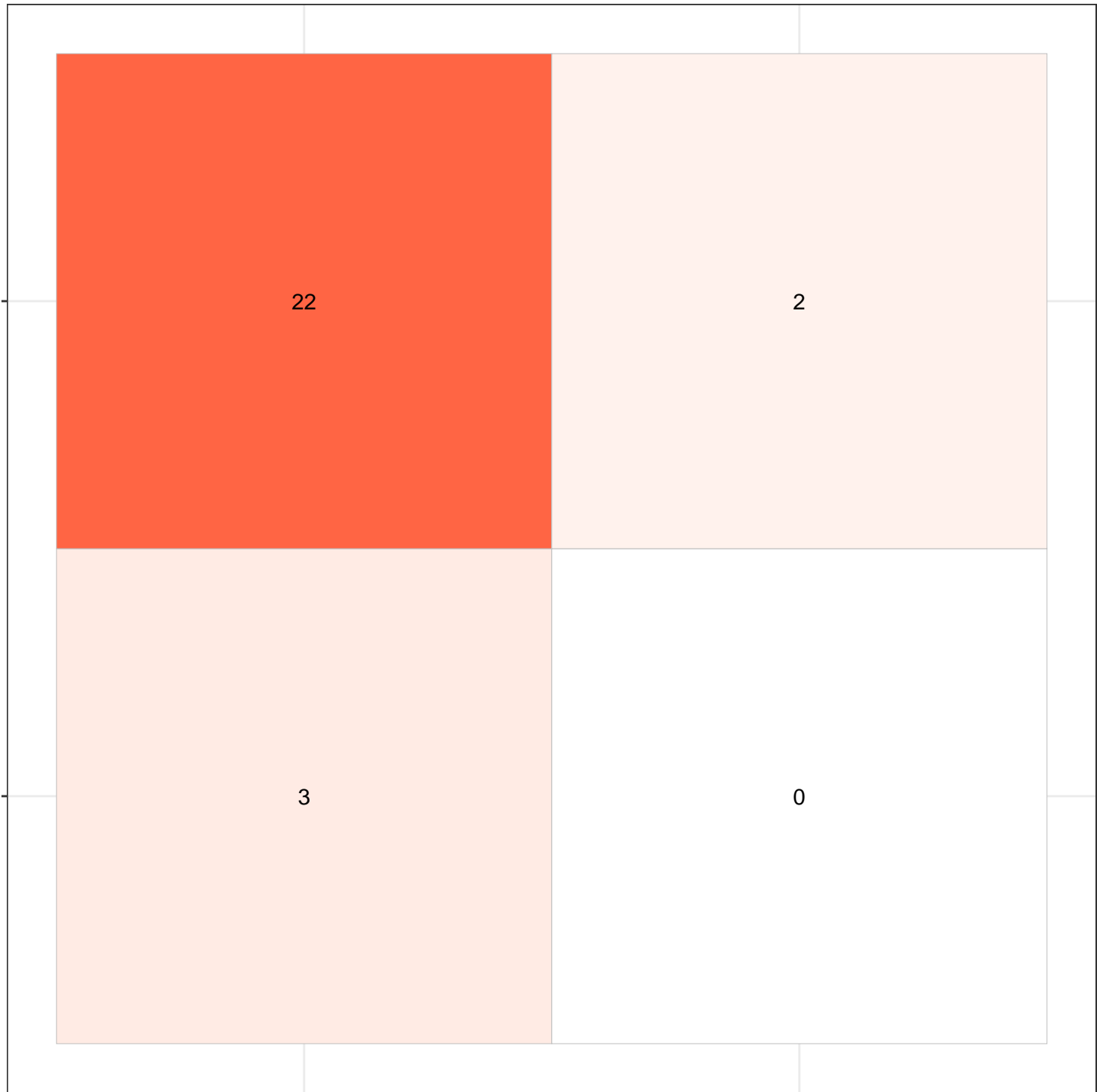
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22

2

3

0



I1.3.Organization.of.Mechanism_____I1.4.Criticality.of.Effects

I1.3.Organization.of.Mechanism

DOCENTRALIZED

DECENTRALIZED

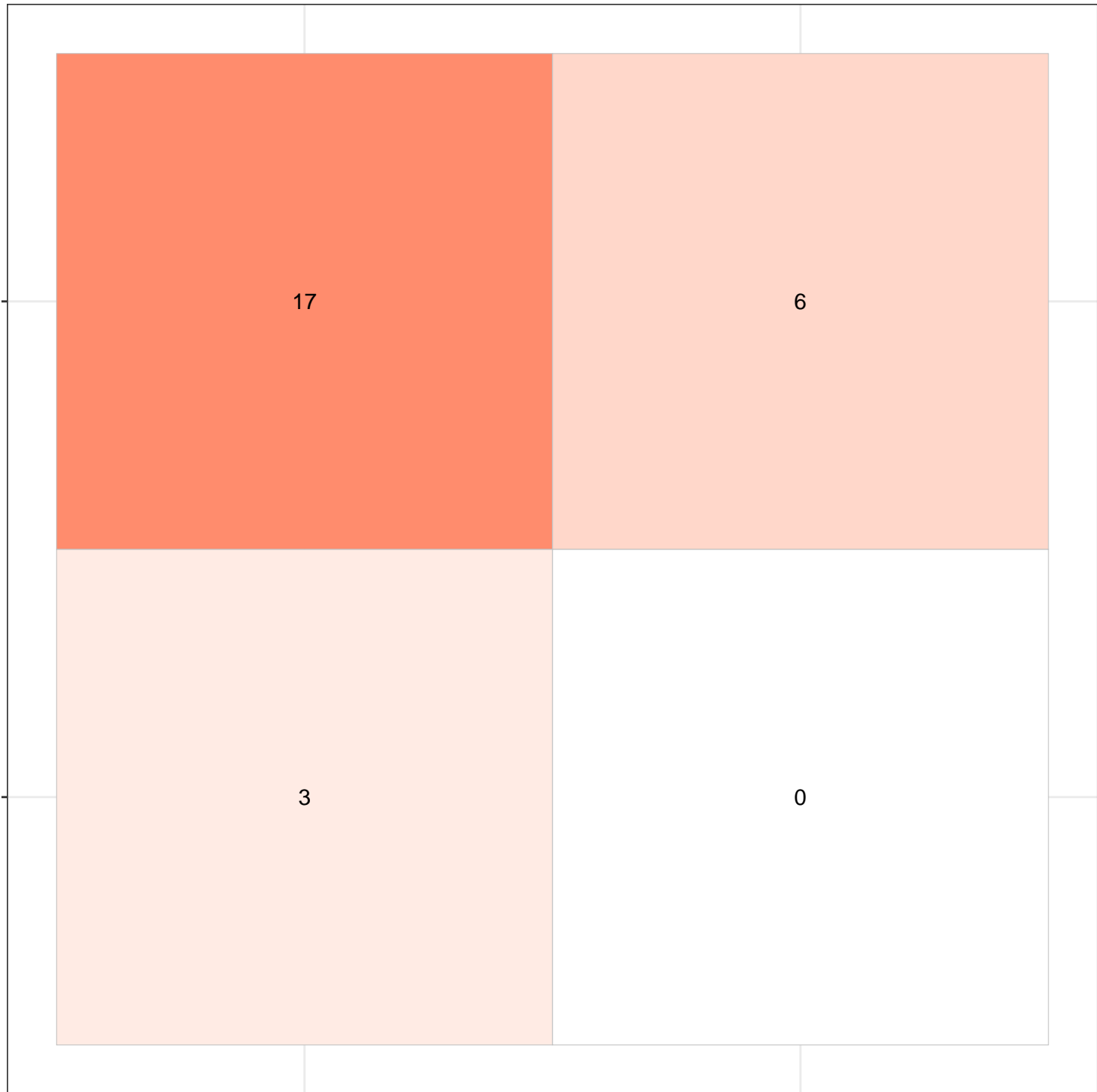
MISSIONCRITICAL

SAFETYCRITICAL

I1.4.Criticality.of.Effects

Frequency

20
10
0



I1.3.Organization.of.Mechanism_____I1.4.Predictability.of.Effects

I1.3.Organization.of.Mechanism

DOCENTRALIZED

DECENTRALIZED

DODETERMINISTIC

NONDETERMINISTIC

I1.4.Predictability.of.Effects

Frequency

20

10

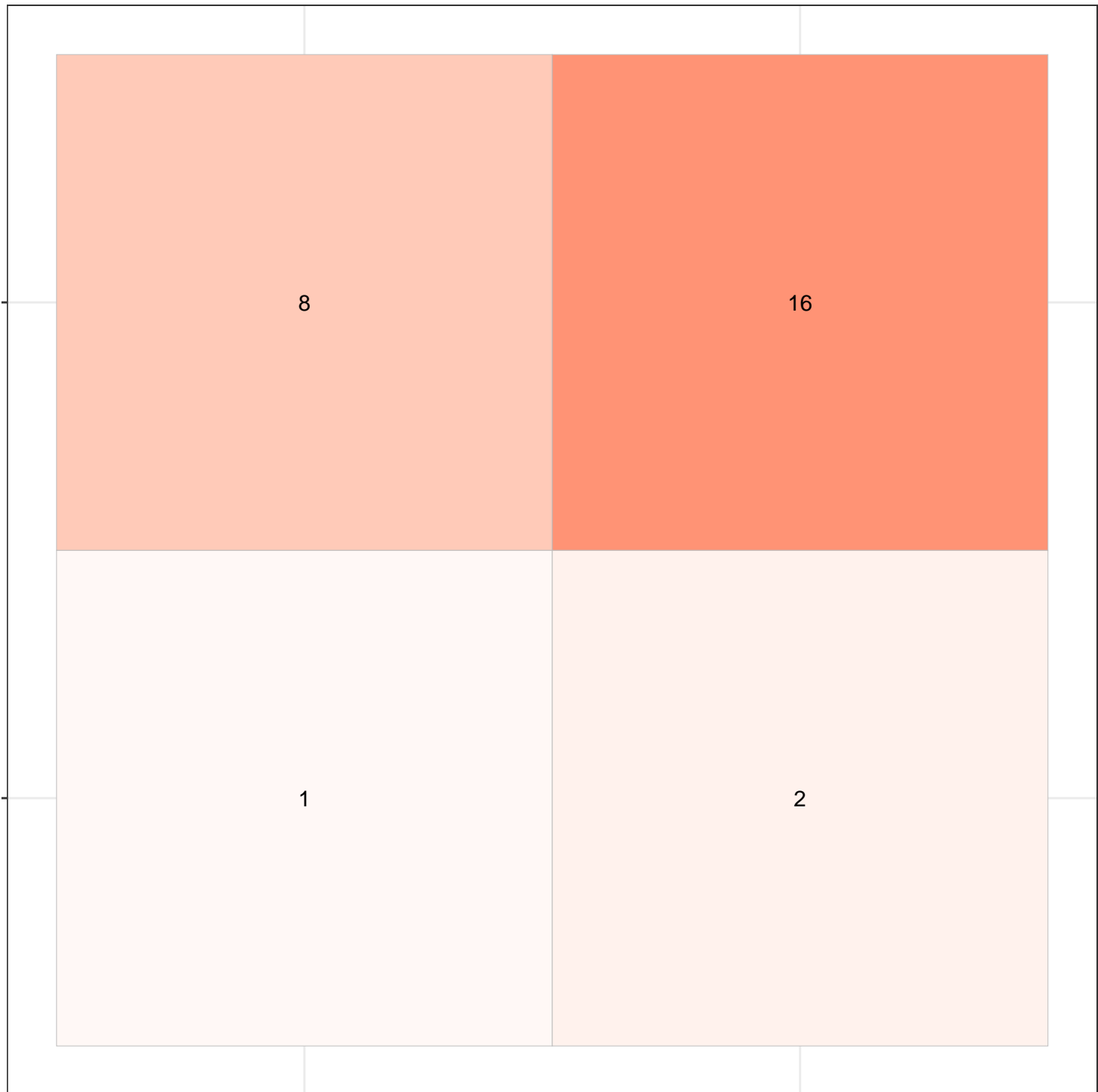
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8

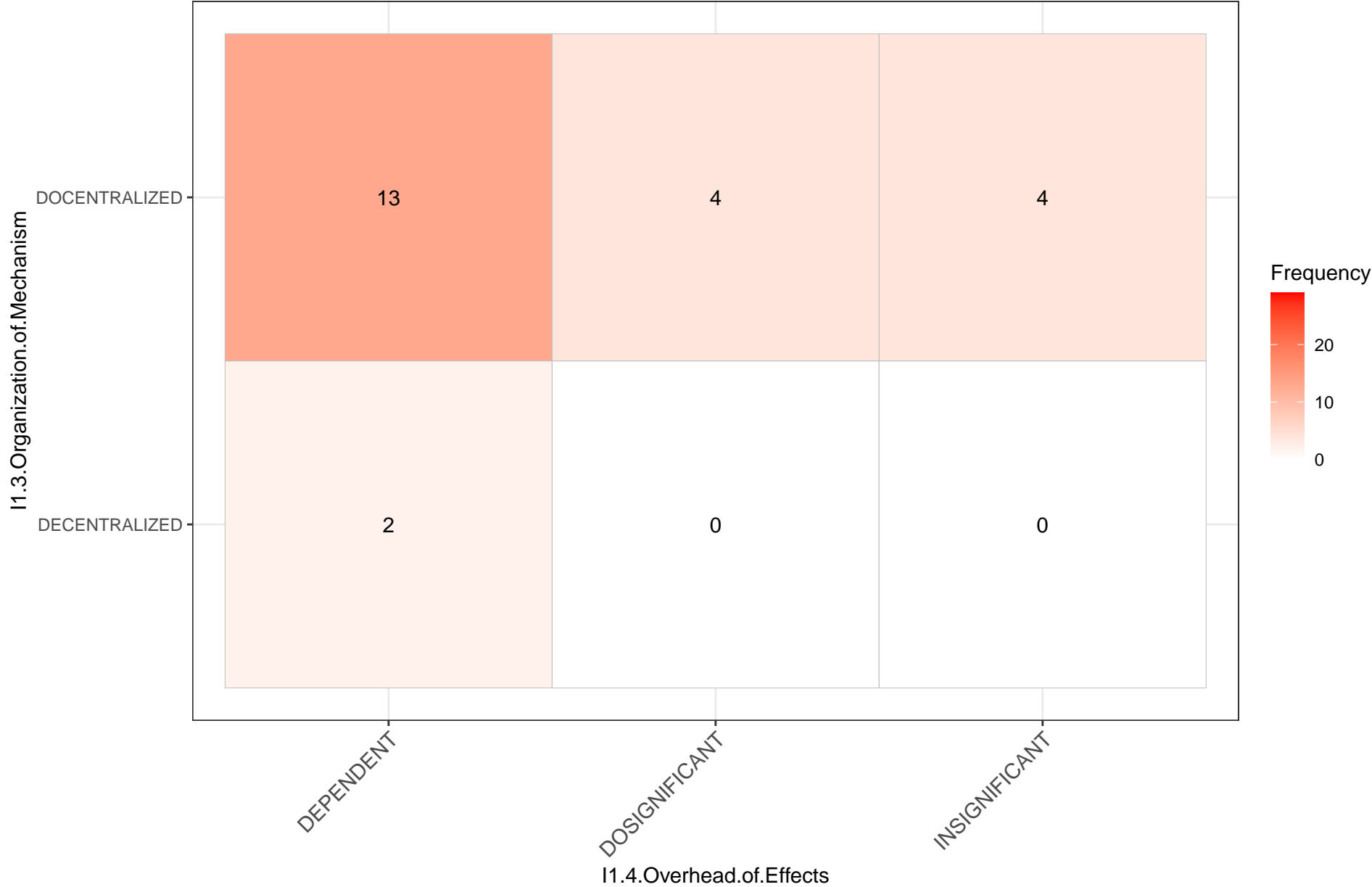
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1

2



I1.3.Organization.of.Mechanism_____I1.4.Overhead.of.Effects



I1.3.Organization.of.Mechanism_____I1.4.Resilience.of.Effects

I1.3.Organization.of.Mechanism

DOCENTRALIZED

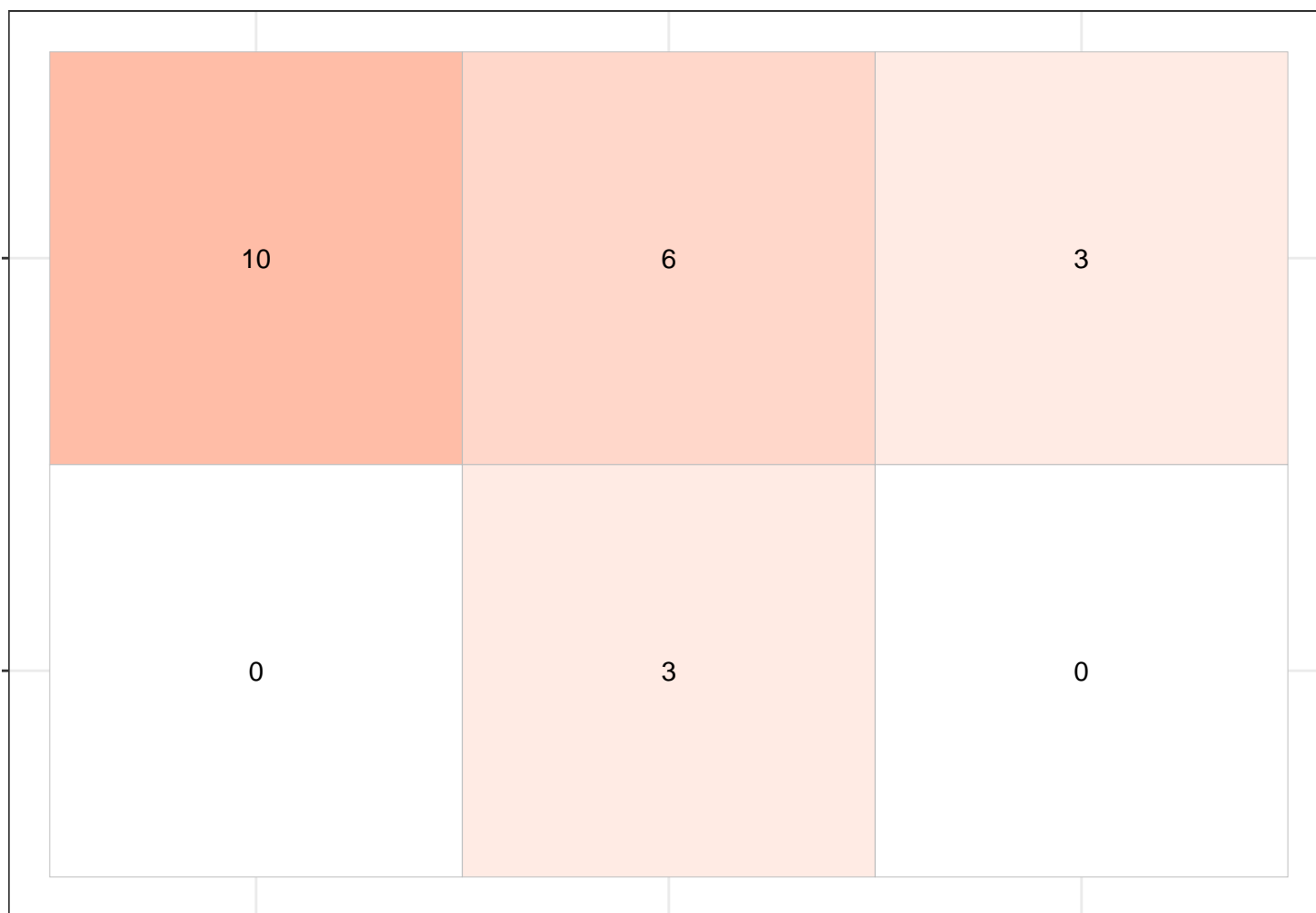
DECENTRALIZED

DEPENDENT

DORESILIENT

IRRESILIENT

I1.4.Resilience.of.Effects



Frequency

20

10

0

I1.3.Organization.of.Mechanism

I1.3.Organization.of.Mechanism_____I2.Adap..Purpose

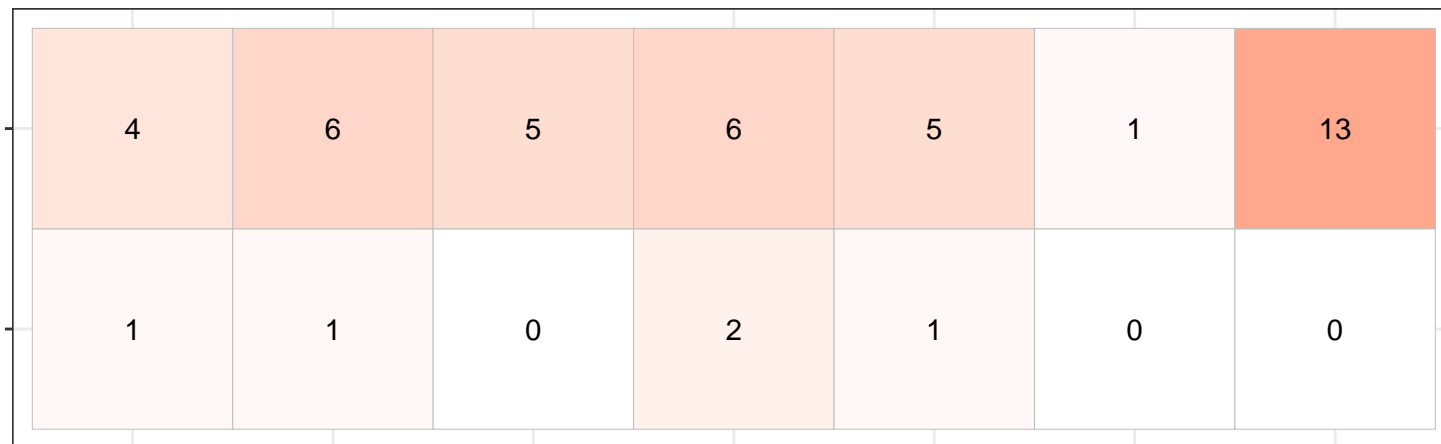
DOCENTRALIZED

DECENTRALIZED

CHANGEFUNCTIONALBEHAVIOR
DEALWITHENVIRONMENTALCHANGES
KEEPMEETINGQUALITYREQUIREMENTSATRUNTIME
OPTIMIZERESOURCEUSAGE
OPTIMIZESYSTEMPERFORMANCE
RECOVERFROMATTACKS
RECOVERFROMERRORSFAULTS

I2.Adap..Purpose

Frequency



I1.3.Organization.of.Mechanism_____I4.Robo.SW

I1.3.Organization.of.Mechanism

DOCENTRALIZED

DECENTRALIZED

OTHER

ROS1

ROS2

I4.Robo.SW

Frequency

20

10

0

7

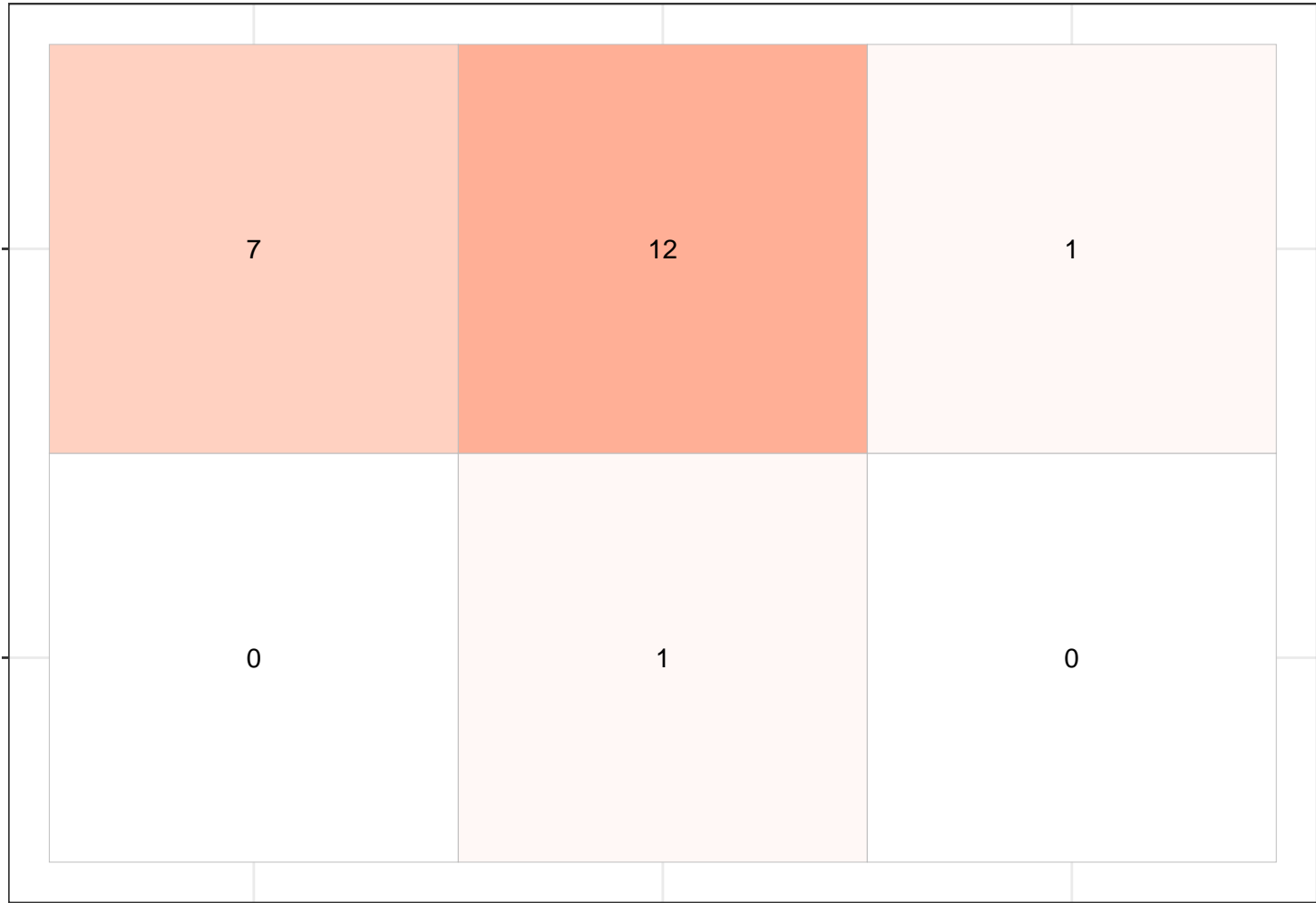
12

1

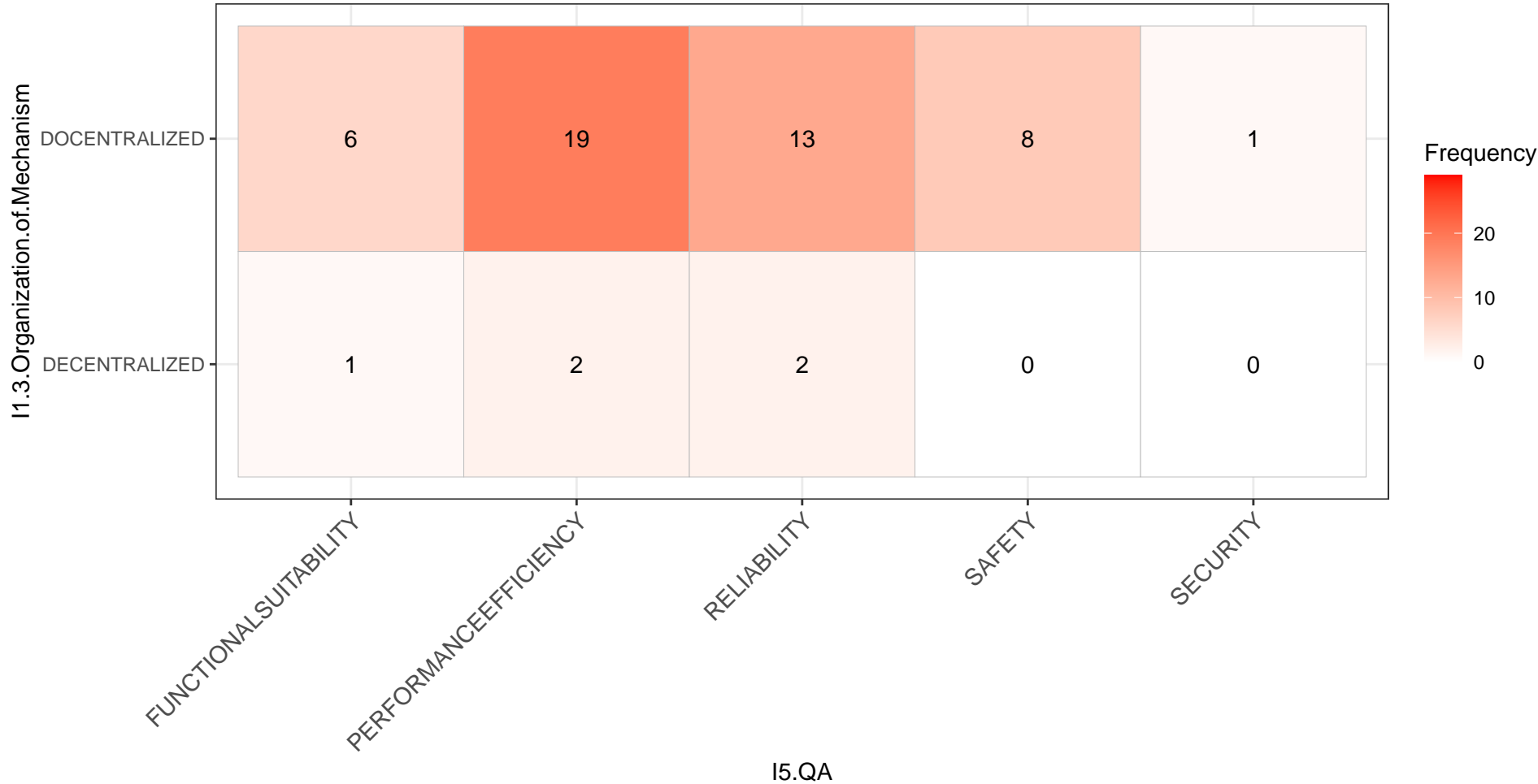
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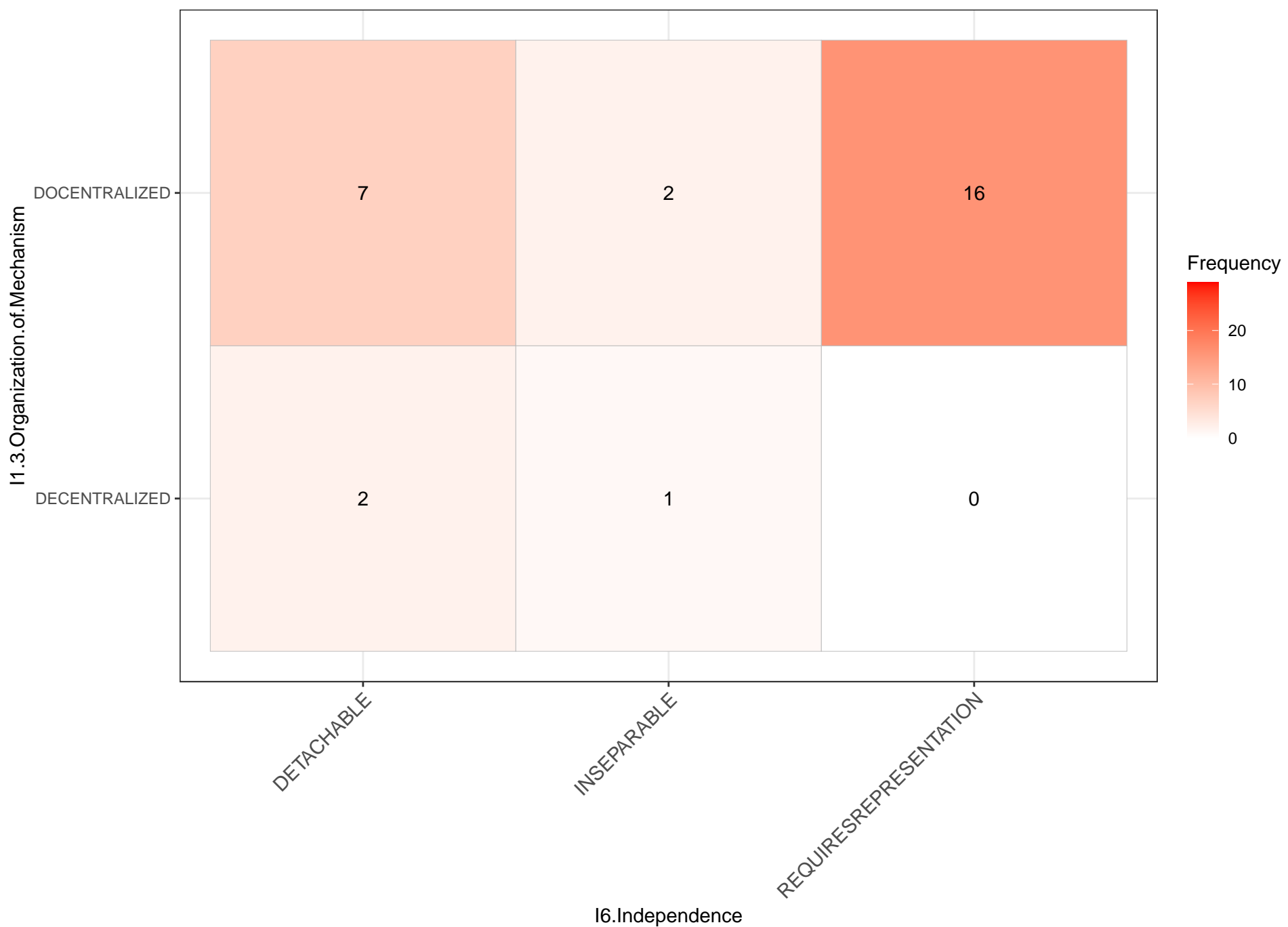
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I1.3.Organization.of.Mechanism_____I5.QA



I1.3.Organization.of.Mechanism_____I6.Independence



I1.3.Organization.of.Mechanism_____I7.Deployment.Realness

I1.3.Organization.of.Mechanism

DOCENTRALIZED

DECENTRALIZED

REAL

SIMULATED

I7.Deployment.Realness

Frequency



20

10

0

13

10

1

0

I1.3.Organization.of.Mechanism_____I7.Mission.Realness

I1.3.Organization.of.Mechanism

DOCENTRALIZED

13

12

DECENTRALIZED

2

1

REAL

SYNTHETIC

I7.Mission.Realness

Frequency

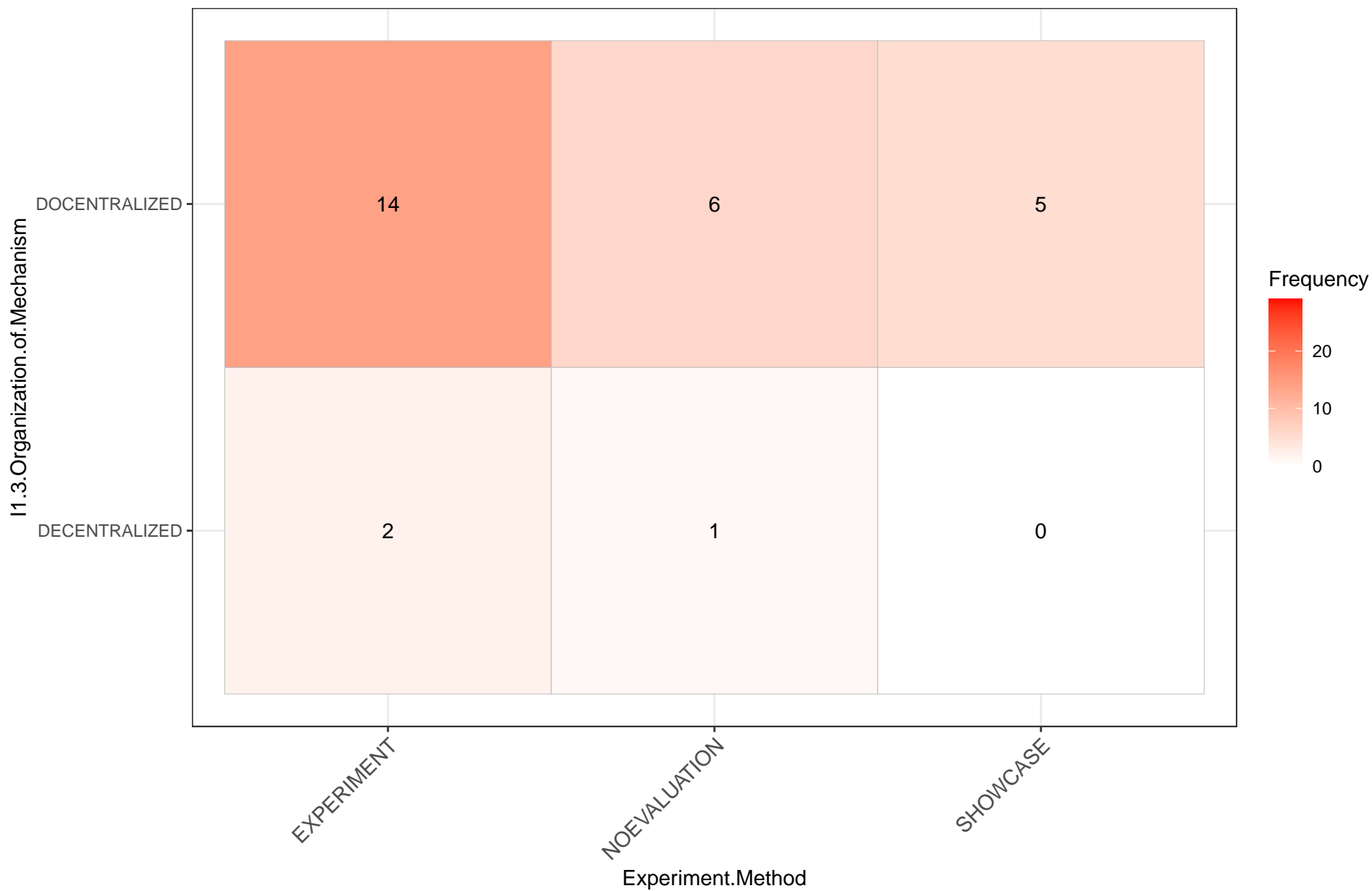


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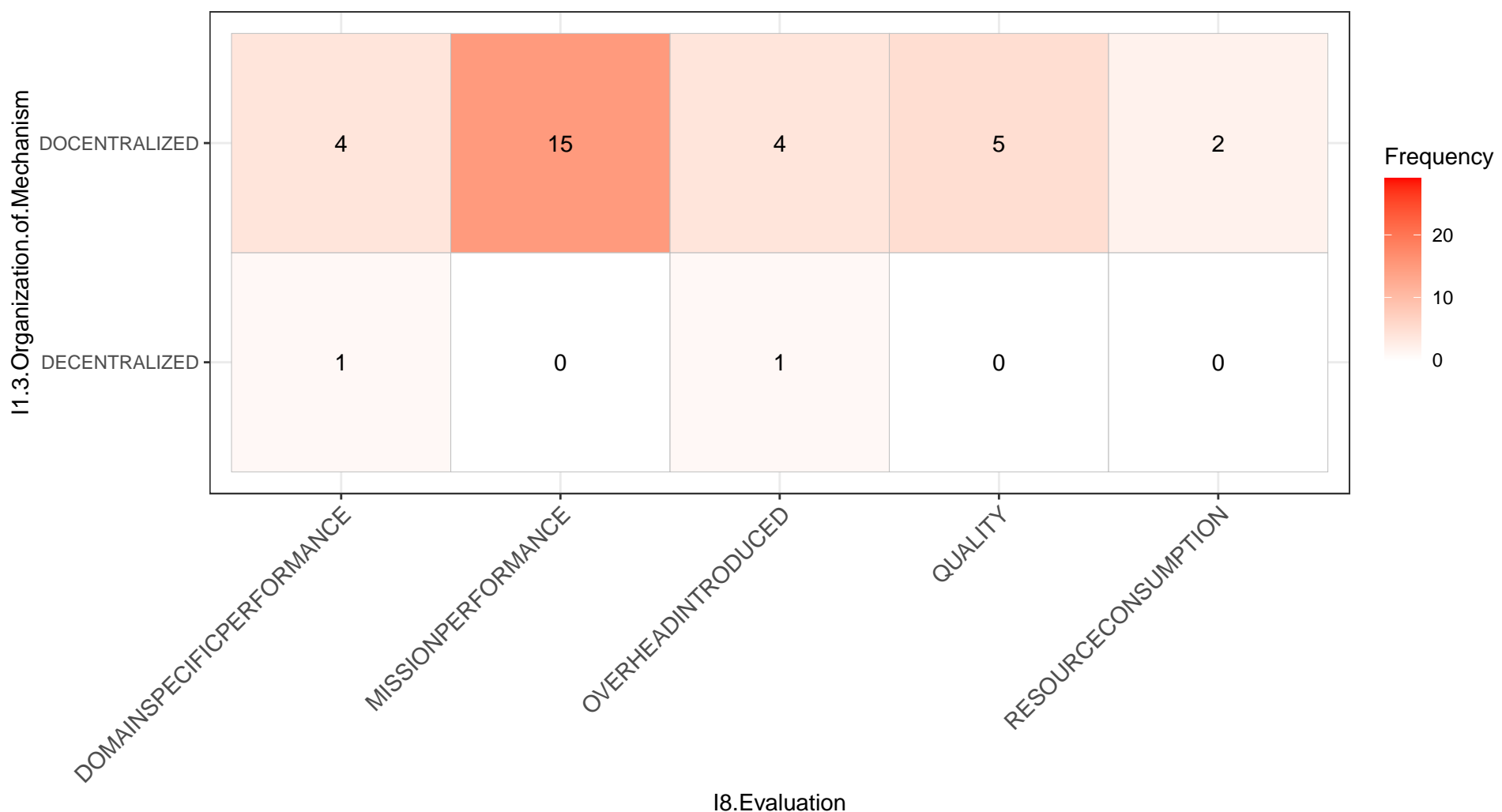
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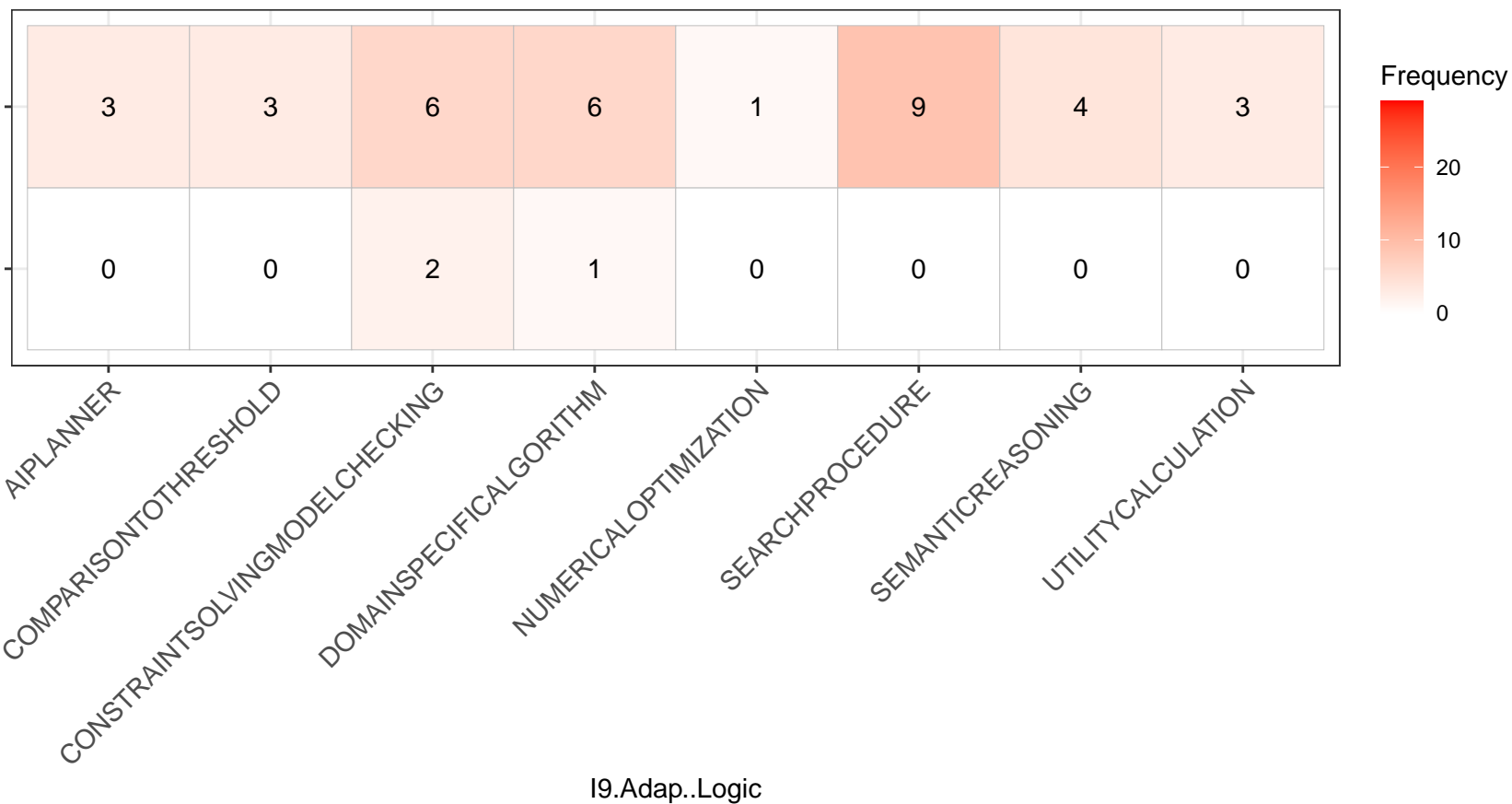
I1.3.Organization.of.Mechanism_____Experiment.Method



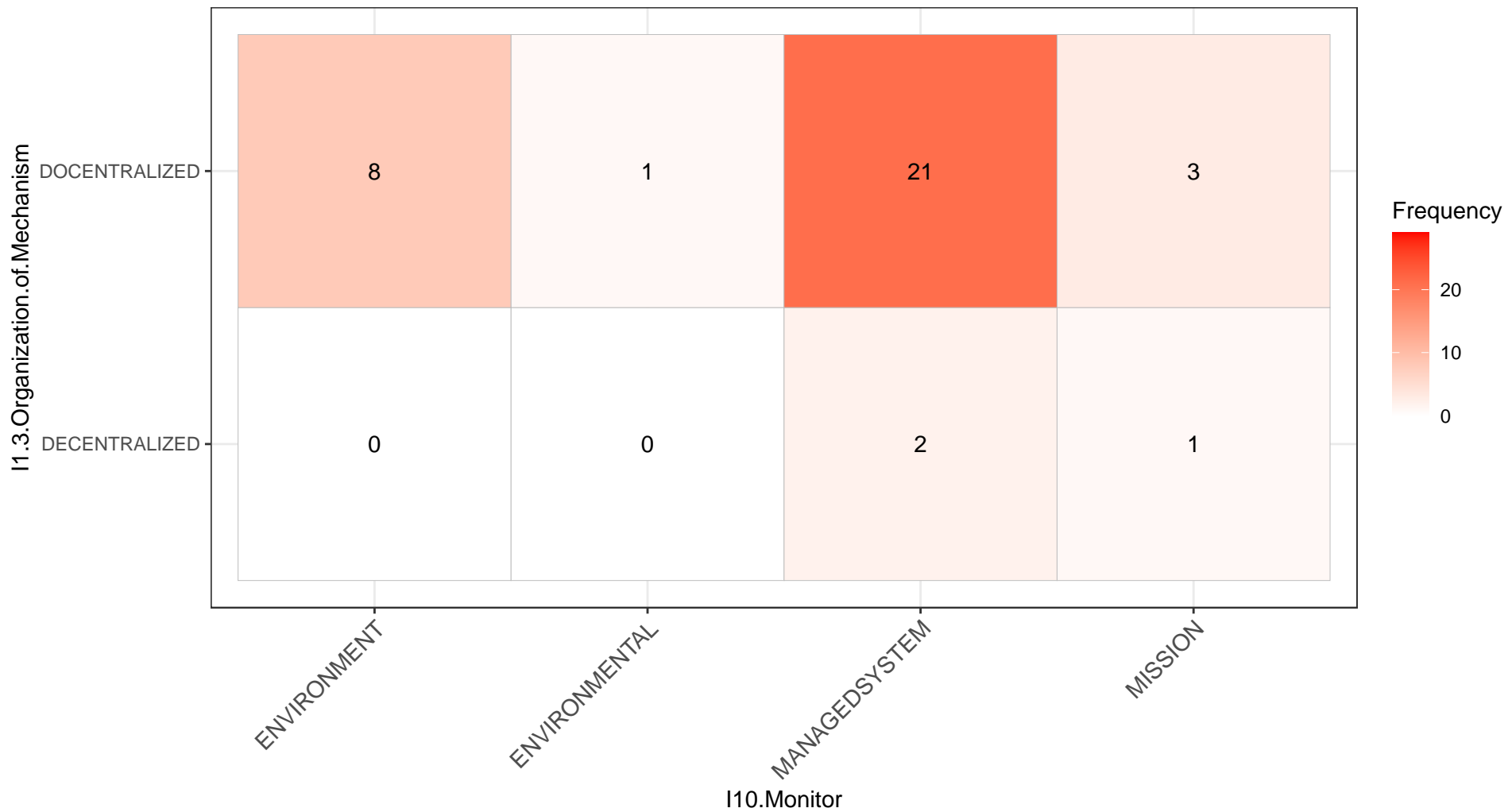
I1.3.Organization.of.Mechanism_____I8.Evaluation



I1.3.Organization.of.Mechanism_____I9.Adap..Logic

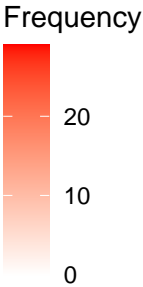
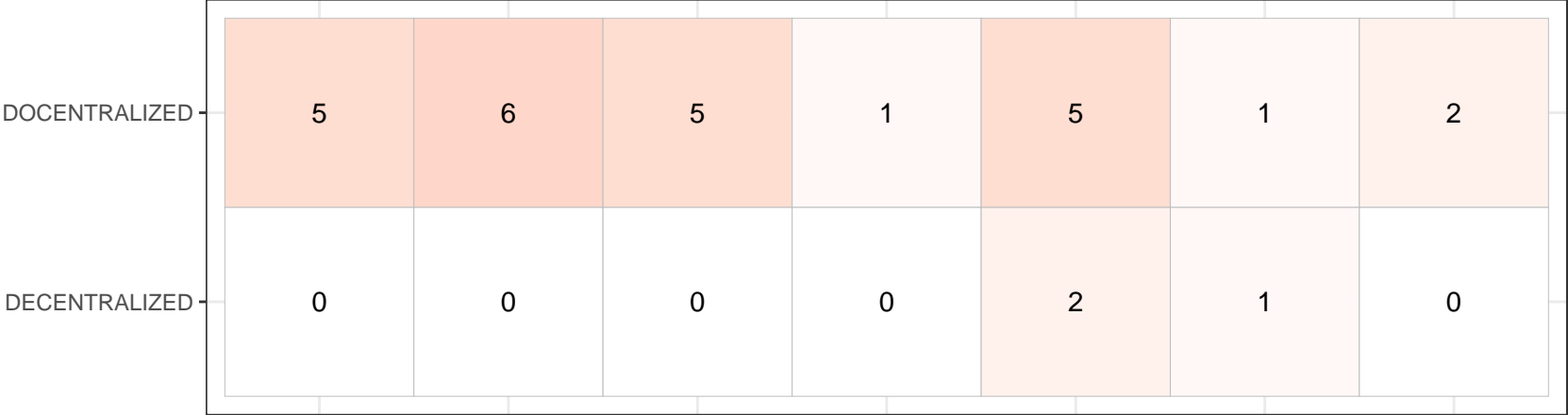


I1.3.Organization.of.Mechanism_____I10.Monitor



I1.3.Organization.of.Mechanism_____I11.Analyze

I1.3.Organization.of.Mechanism



ANALYZINGAGGREGATINGDATA

COMPARISONTOEXPECTEDSYSTEMSTATE

COMPARISONTOTHRESHOLDS

DONEDURINGPLAN

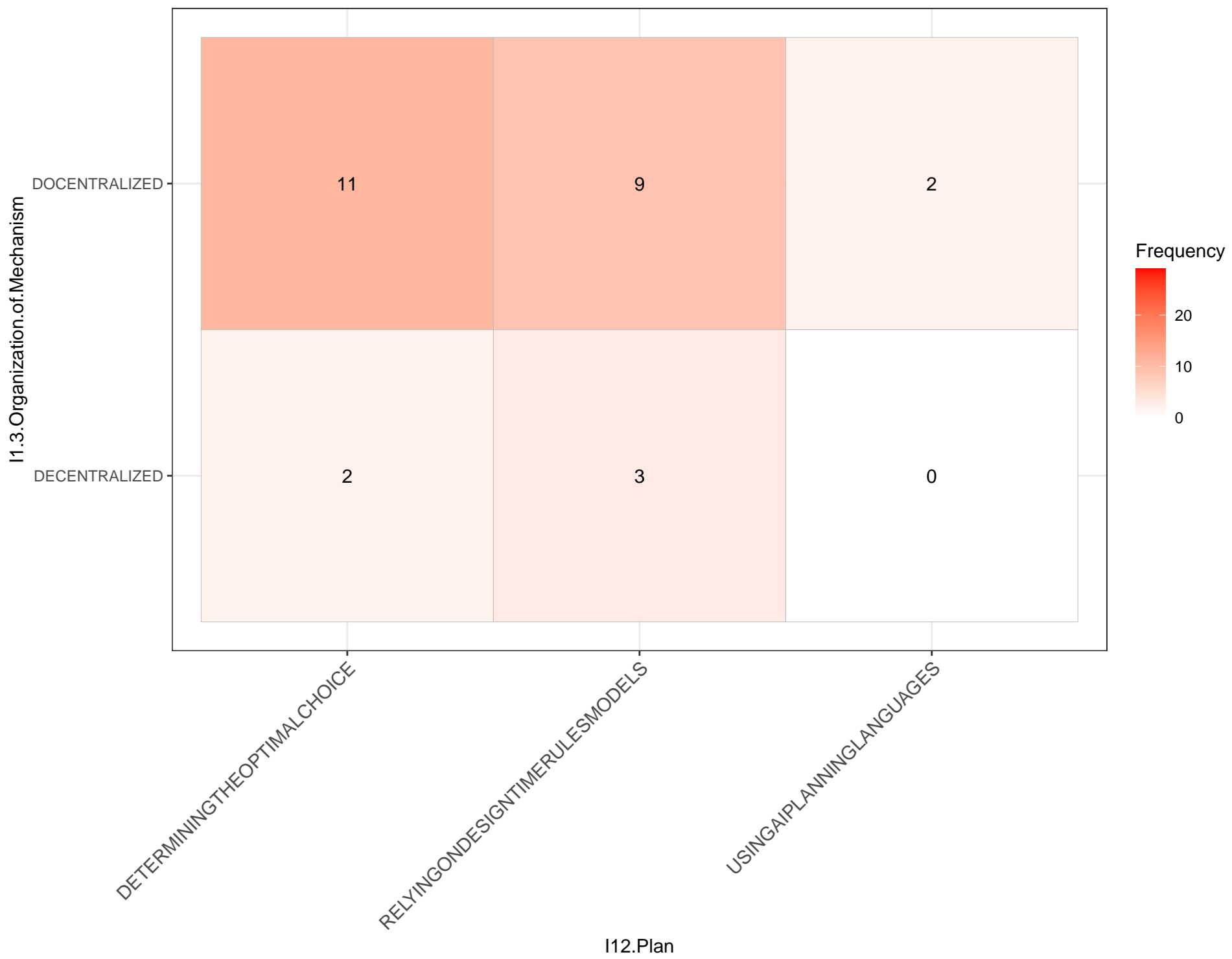
LOGICALINFERENCE

OTHER

TASKUSERDRIVEN

I11.Analyze

I1.3.Organization.of.Mechanism_____I12.Plan



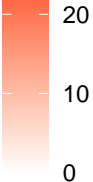
I1.3.Organization.of.Mechanism_____I13.Execute

I1.3.Organization.of.Mechanism

DOCENTRALIZED

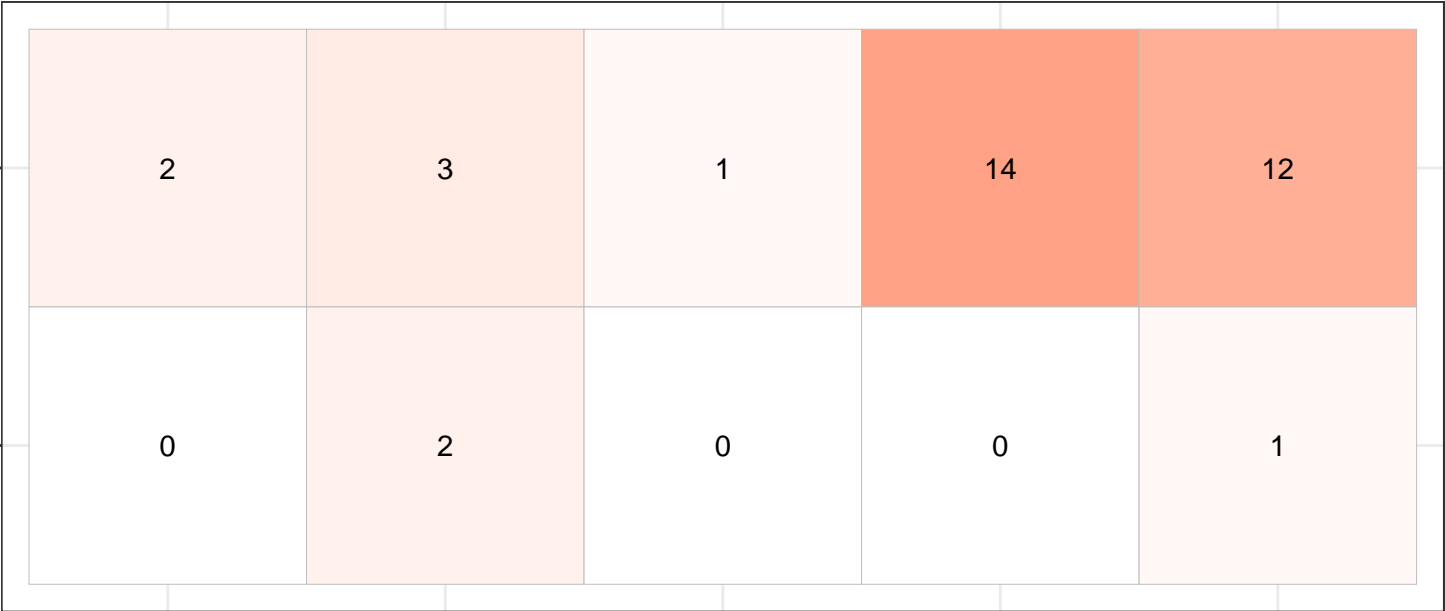
DECENTRALIZED

Frequency

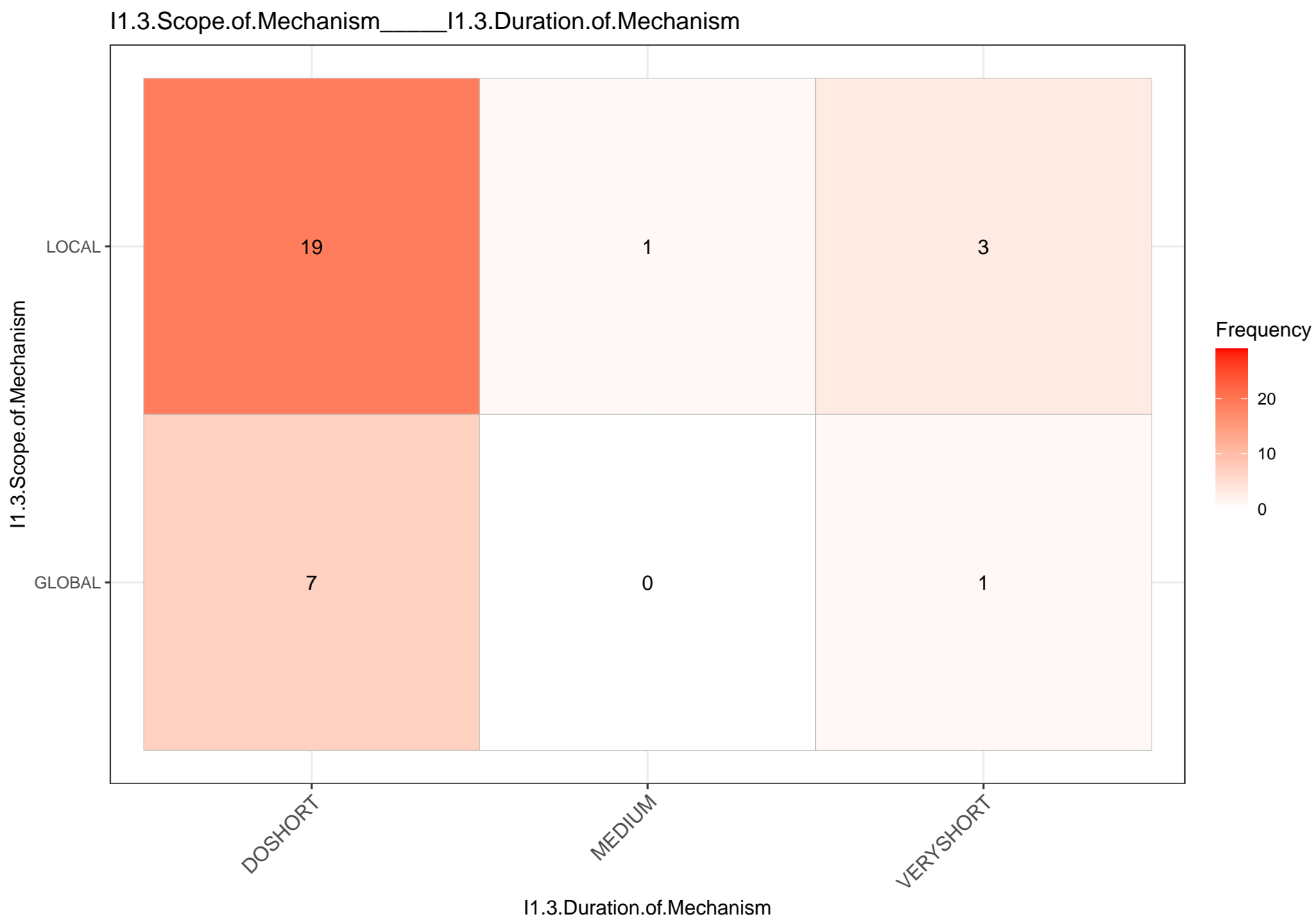


BEHAVIORALTASK
CHANGEINRELATIONSHIPSBETWEENCOMPONENTS
COMPONENTREDEPLOYMENT
REPARAMETERIZATIONOFCOMPONENTS
SWAPPINGAROUNDOFCOMPONENTS

I13.Execute







I1.3.Scope.of.Mechanism_____I1.3.Trigger.of.Mechanism

I1.3.Scope.of.Mechanism

LOCAL

21

2

GLOBAL

6

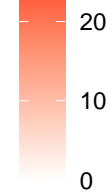
1

EVENTTRIGGER

TIMETRIGGER

I1.3.Trigger.of.Mechanism

Frequency



LOCAL

17

5

GLOBAL

2

4

MISSIONCRITICAL

SAFETYCRITICAL

Frequency



20

10

0

I1.3.Scope.of.Mechanism_____I1.4.Predictability.of.Effects

I1.3.Scope.of.Mechanism

LOCAL

5

18

GLOBAL

3

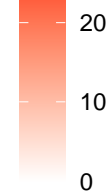
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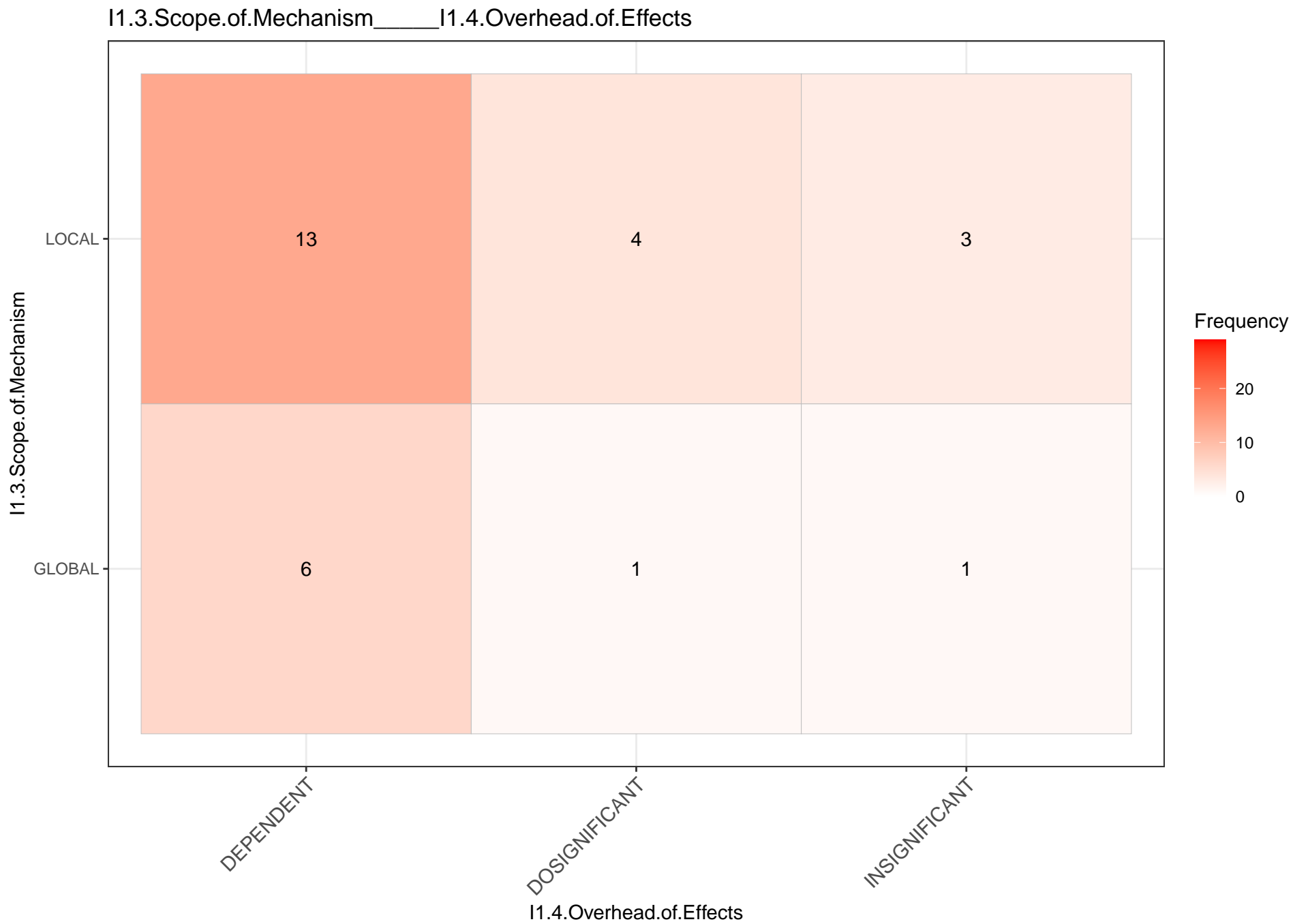
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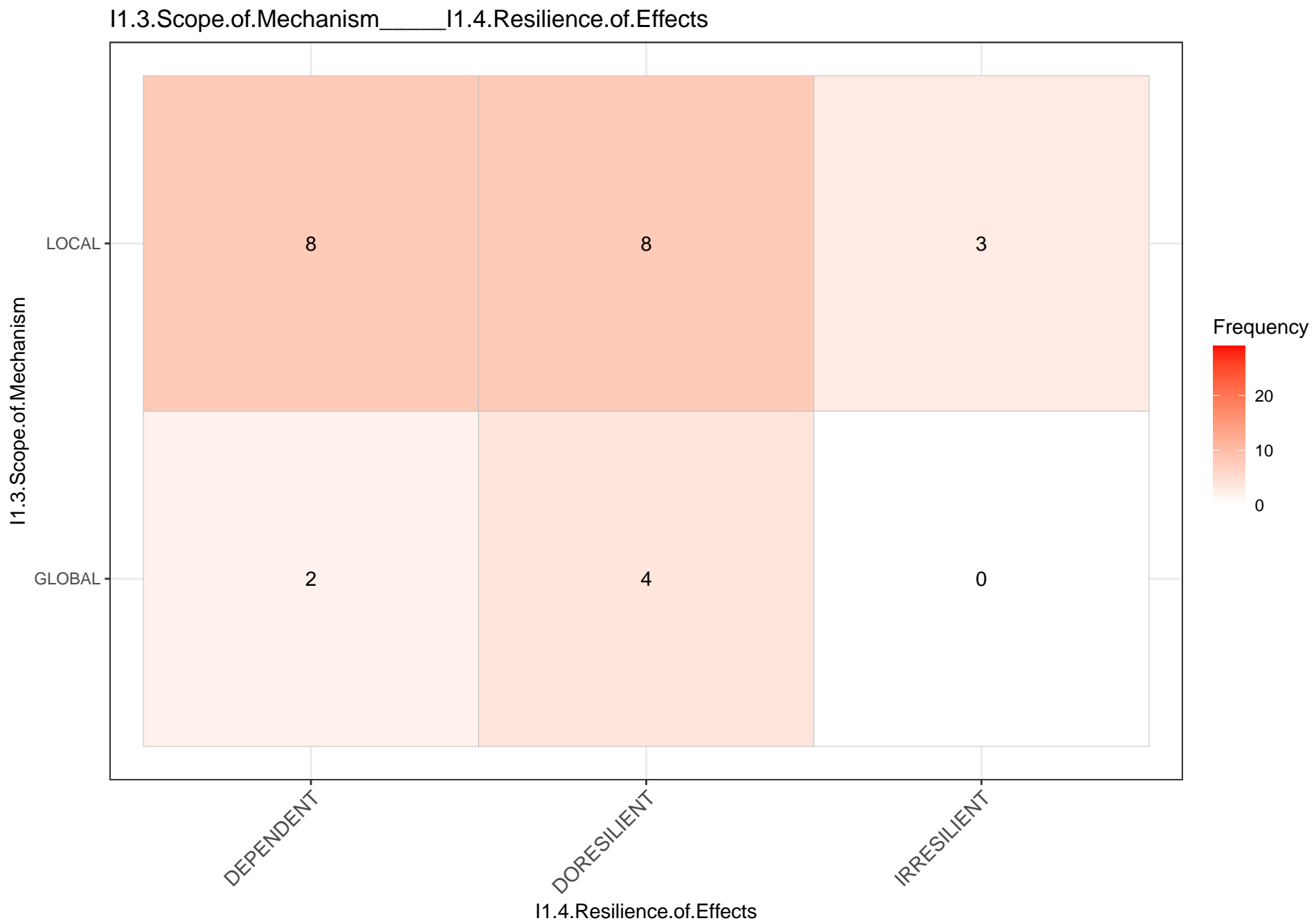
NONDETERMINISTIC

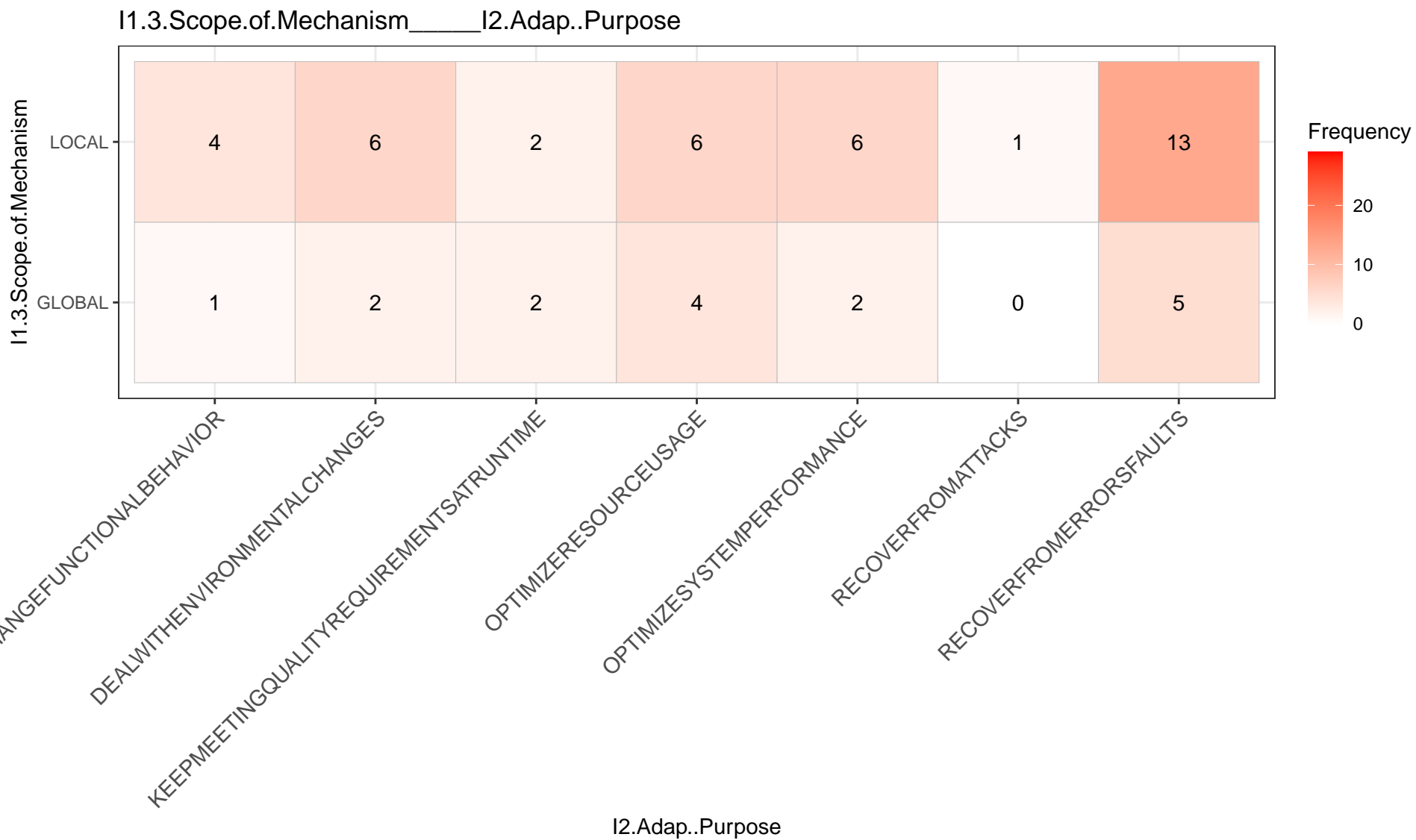
I1.4.Predictability.of.Effects

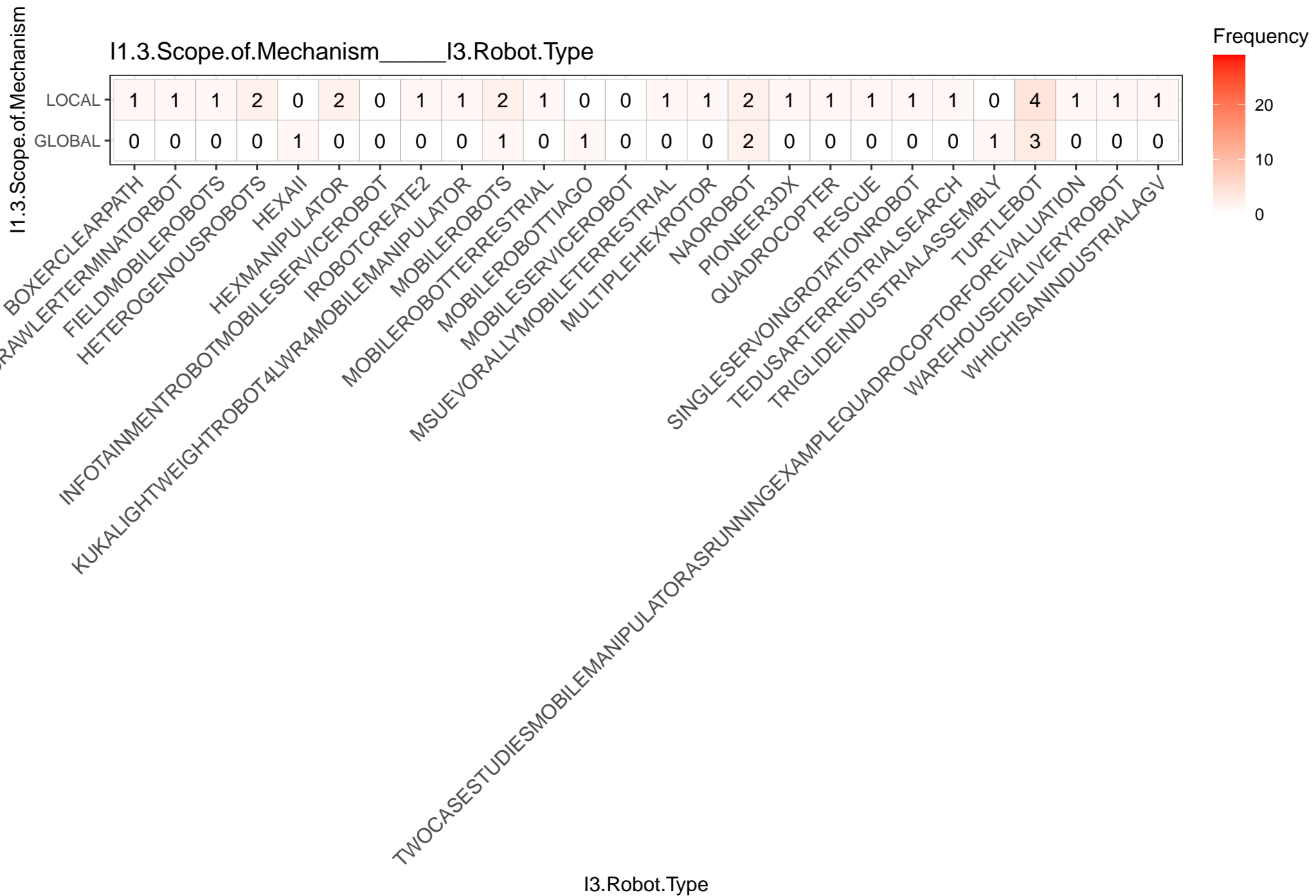
Frequency











I1.3.Scope.of.Mechanism_____I4.Robo.SW

I1.3.Scope.of.Mechanism

LOCAL

7

13

0

GLOBAL

1

4

1

OTHER

ROS1

ROS2

I4.Robo.SW

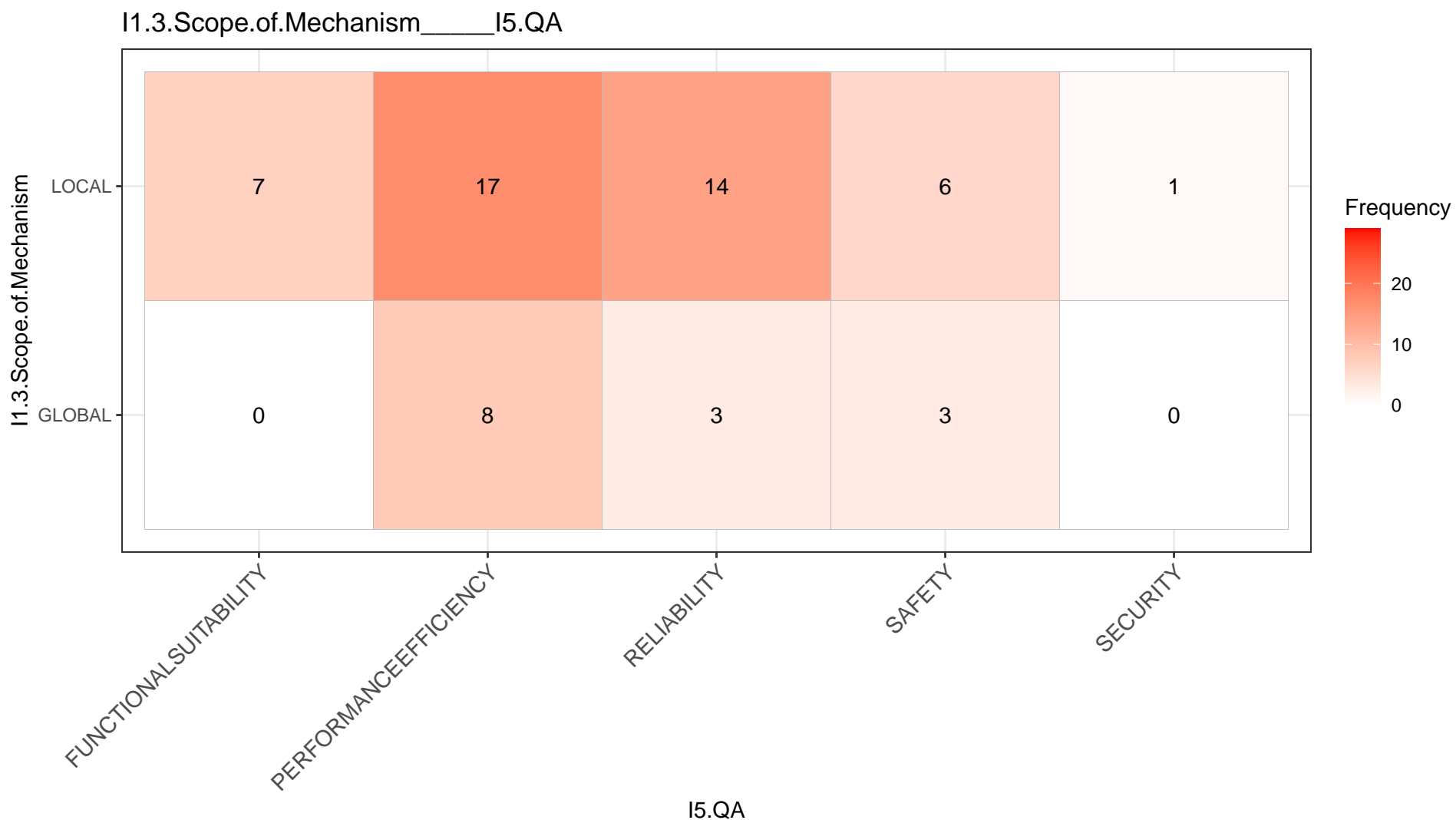
Frequency



20

10

0



I1.3.Scope.of.Mechanism_____I6.Independence

I1.3.Scope.of.Mechanism

LOCAL

7

3

14

GLOBAL

5

1

2

DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence

Frequency

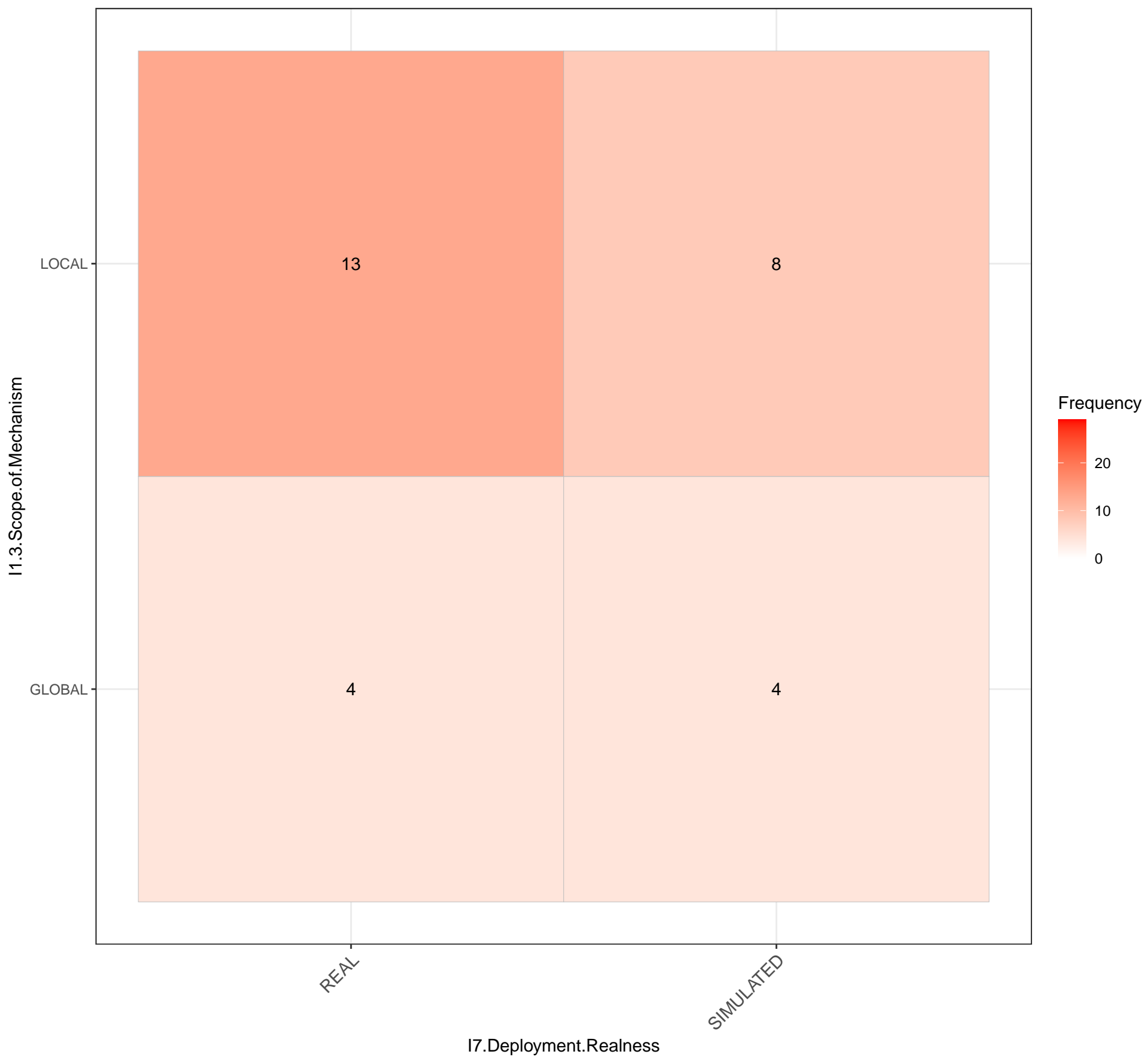


20

10

0

I1.3.Scope.of.Mechanism_____I7.Deployment.Realness



I1.3.Scope.of.Mechanism_____I7.Mission.Realness

I1.3.Scope.of.Mechanism

LOCAL

11

13

GLOBAL

3

5

REAL

SYNTHETIC

I7.Mission.Realness

Frequency



20

10

0

I1.3.Scope.of.Mechanism_____Experiment.Method

I1.3.Scope.of.Mechanism

LOCAL

15

5

4

GLOBAL

5

2

1

EXPERIMENT

NOEVALUATION

SHOWCASE

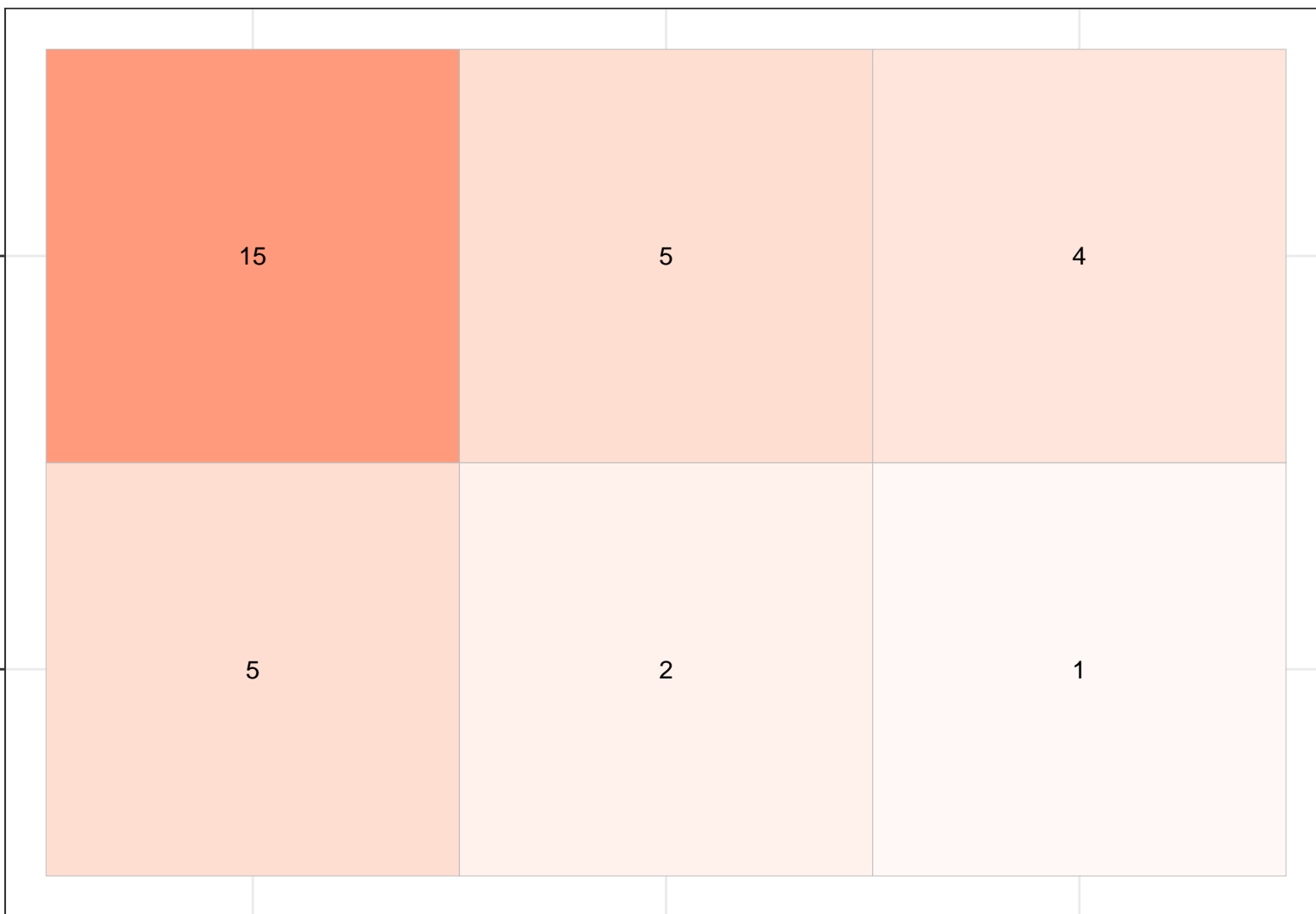
Experiment.Method

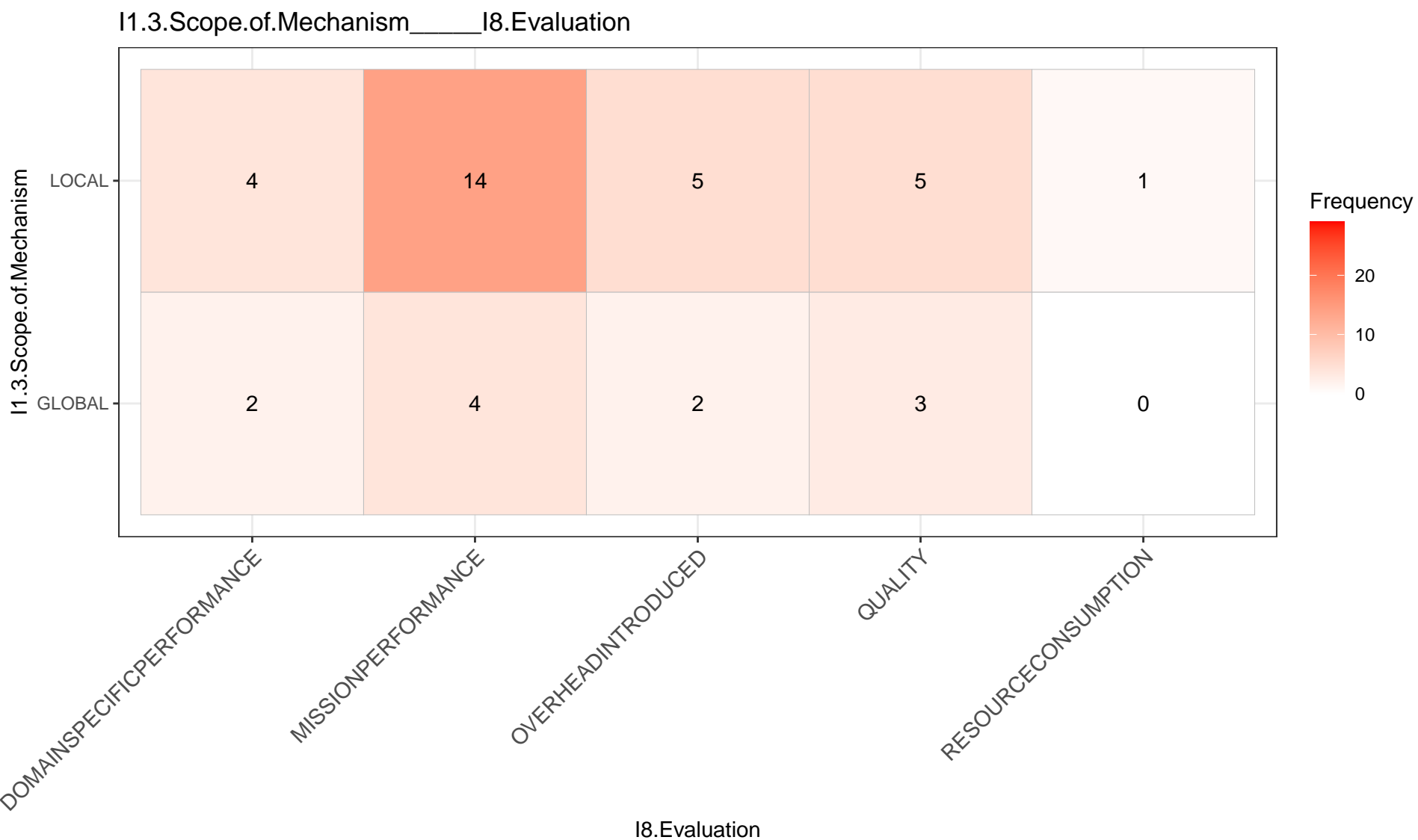
Frequency

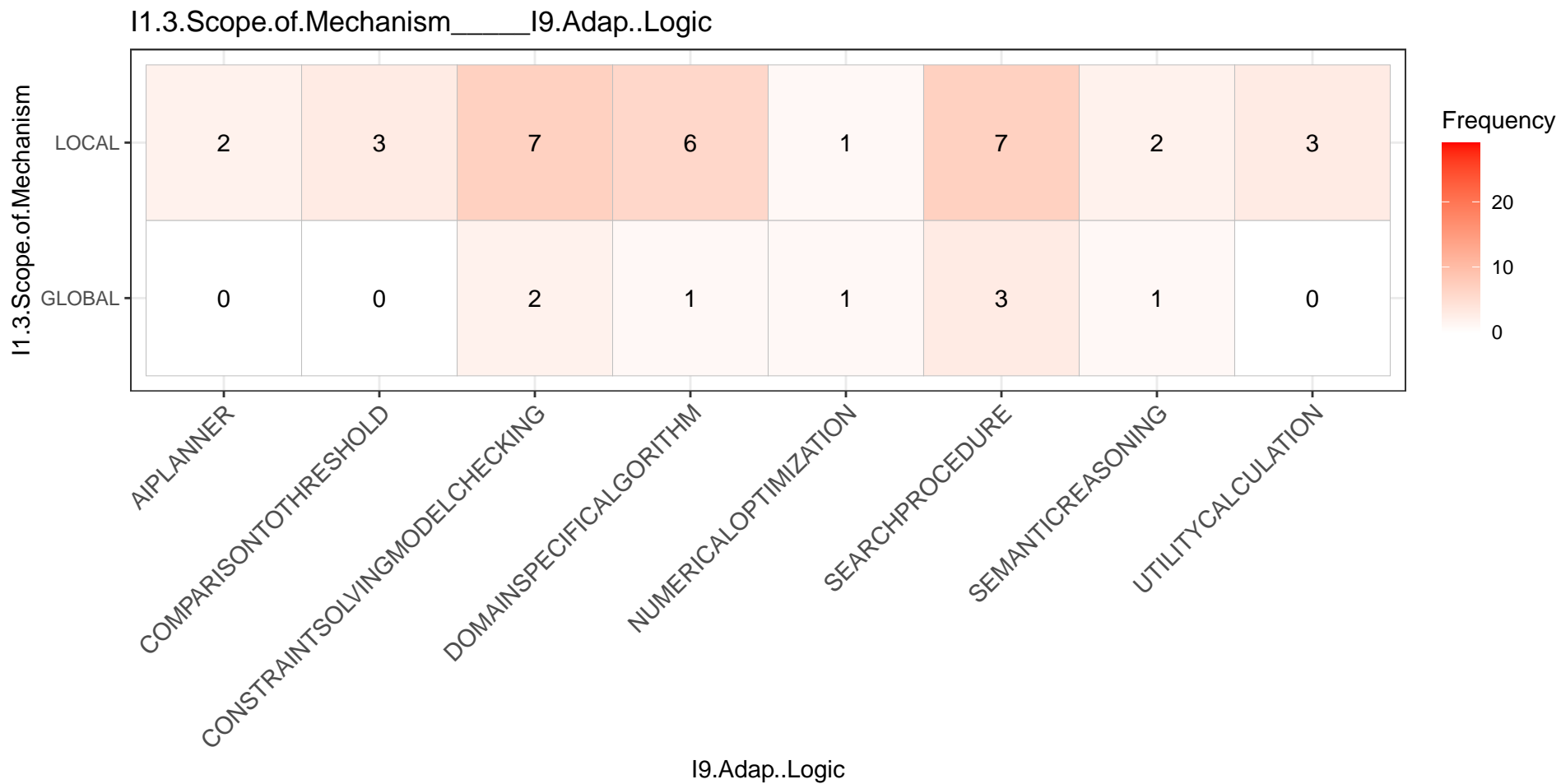
20

10

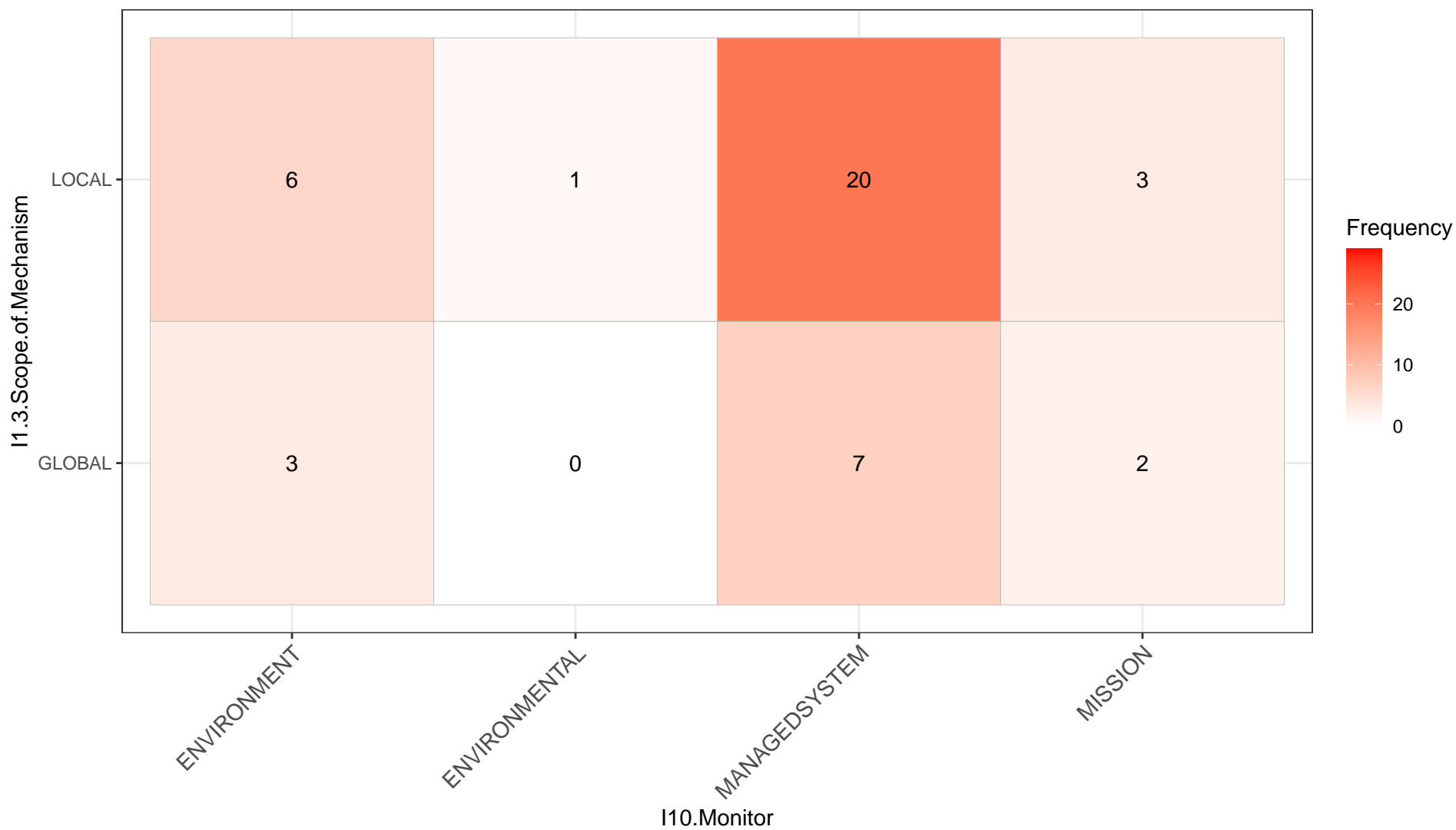
0

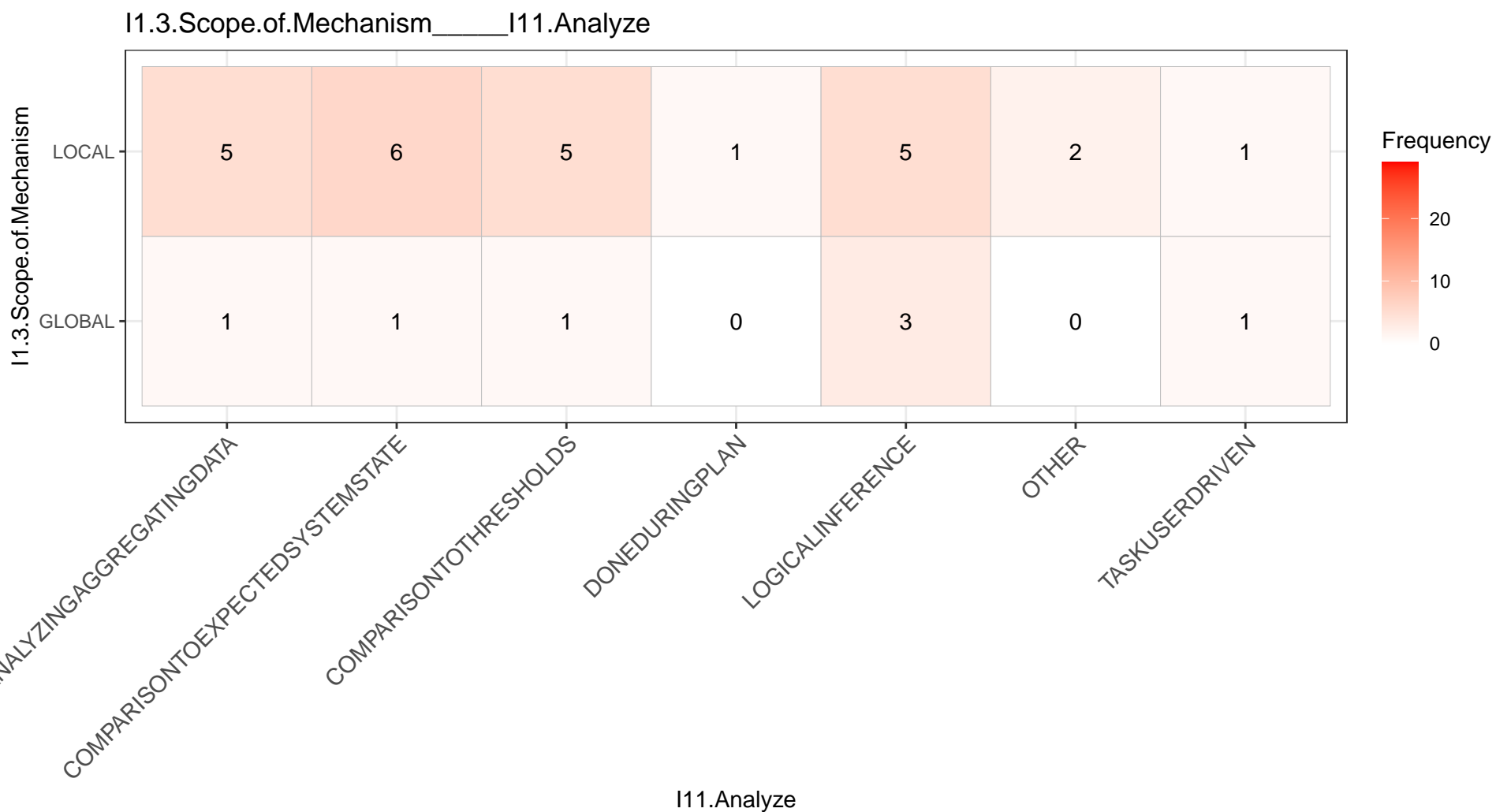




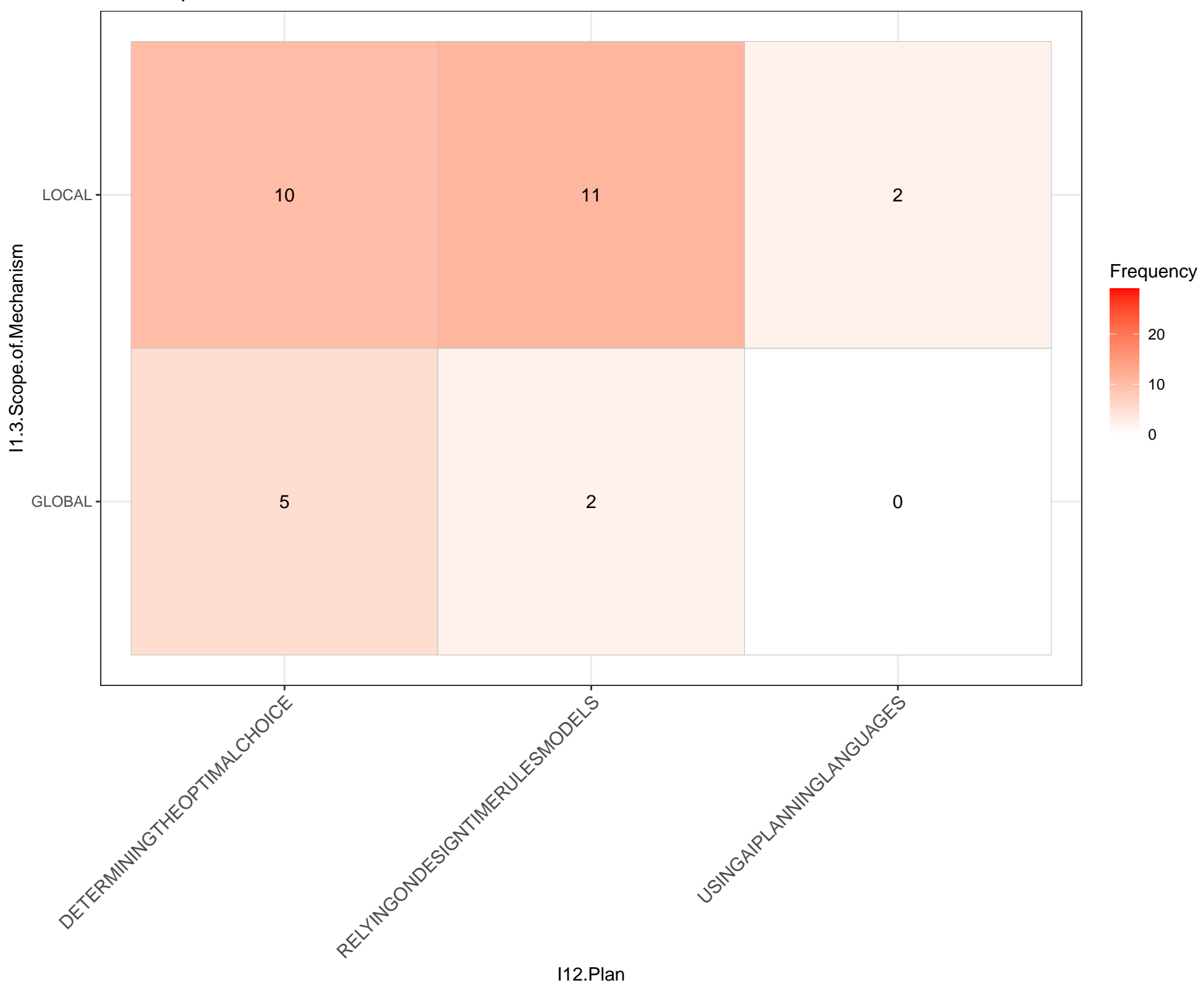


I1.3.Scope.of.Mechanism_____I10.Monitor

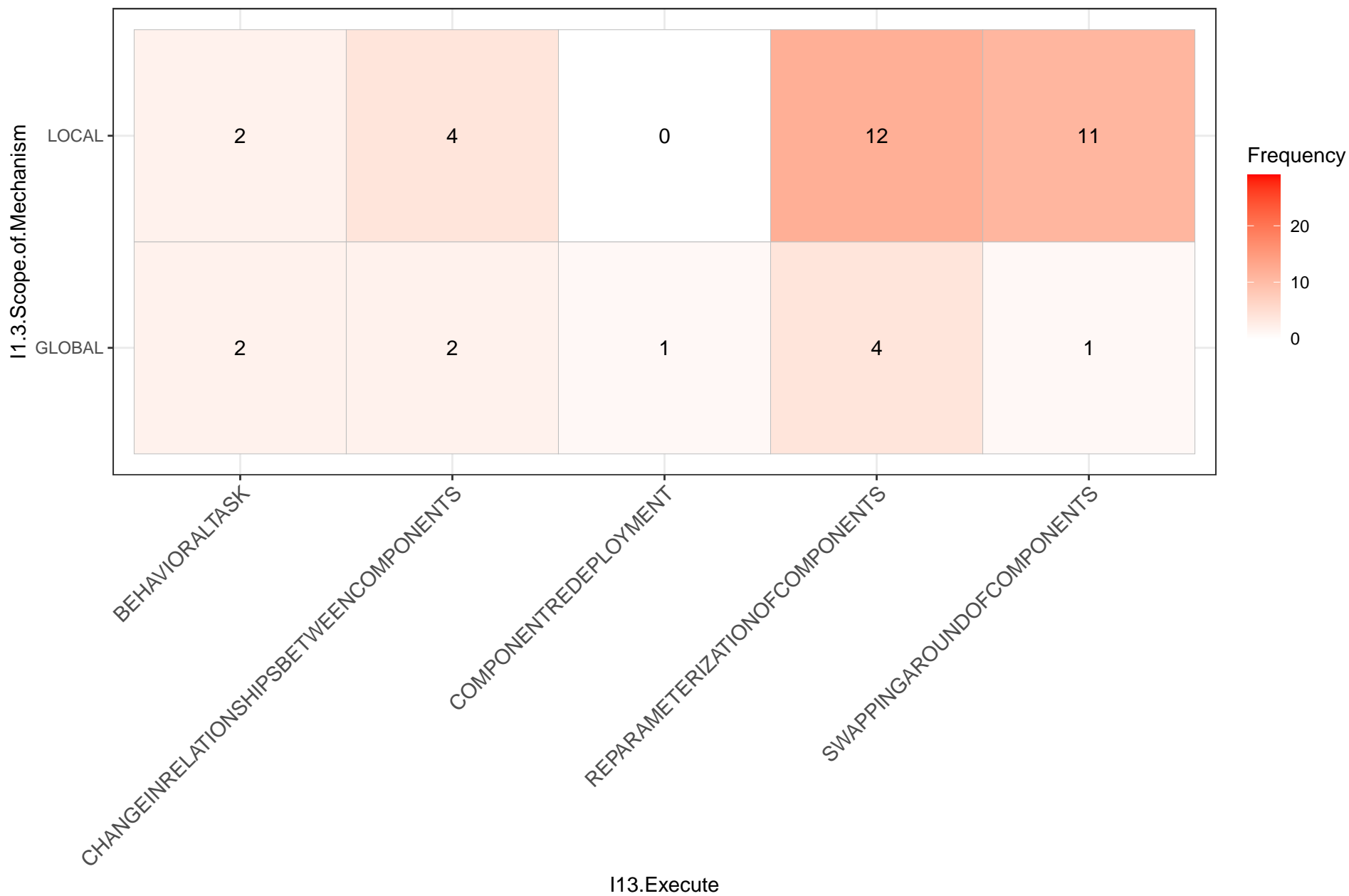


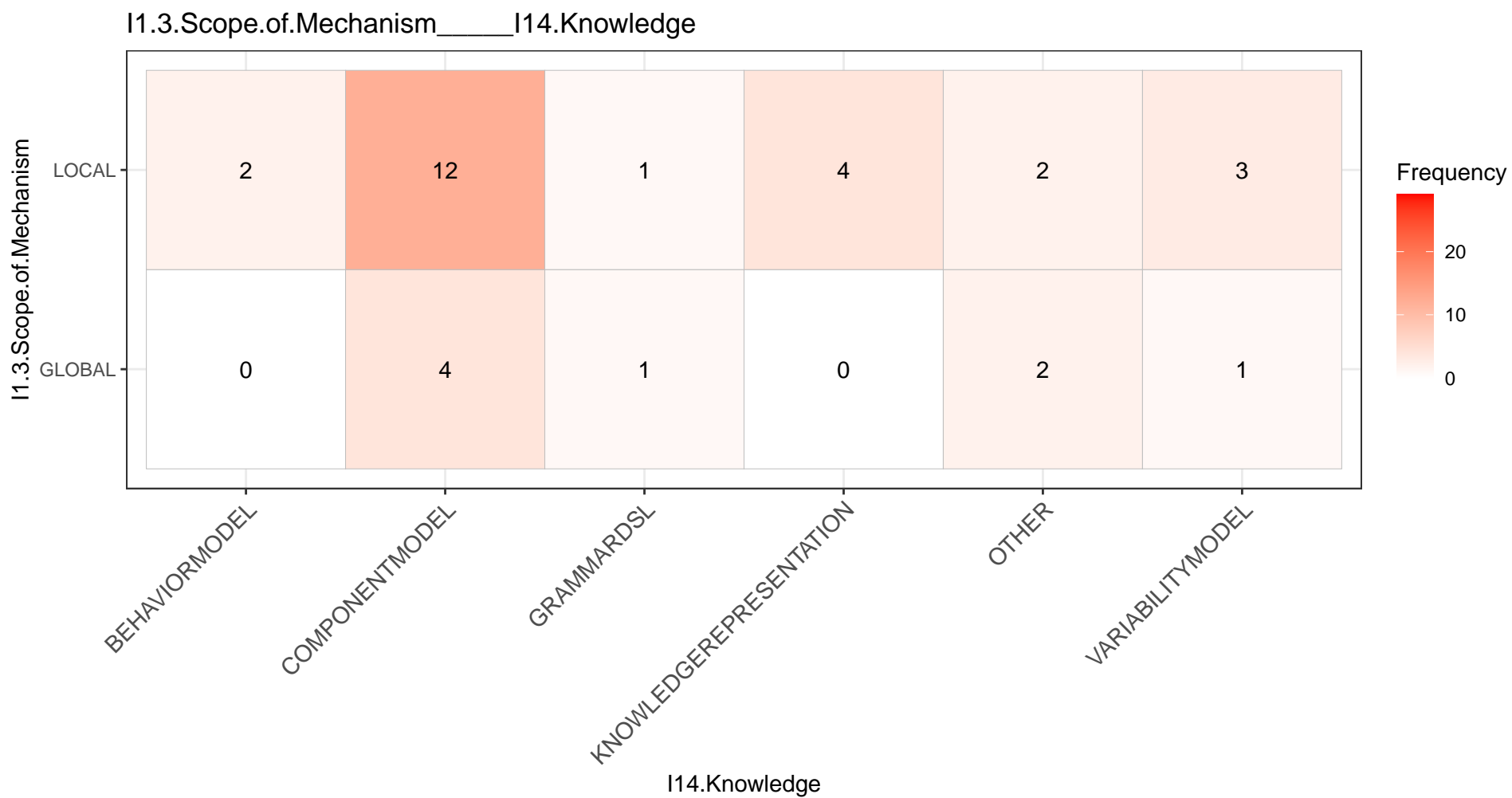


I1.3.Scope.of.Mechanism_____I12.Plan



I1.3.Scope.of.Mechanism____I13.Execute





I1.3.Duration.of.Mechanism

VERYSHORT

4

MEDIUM

1

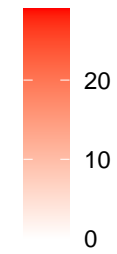
DOSHORT

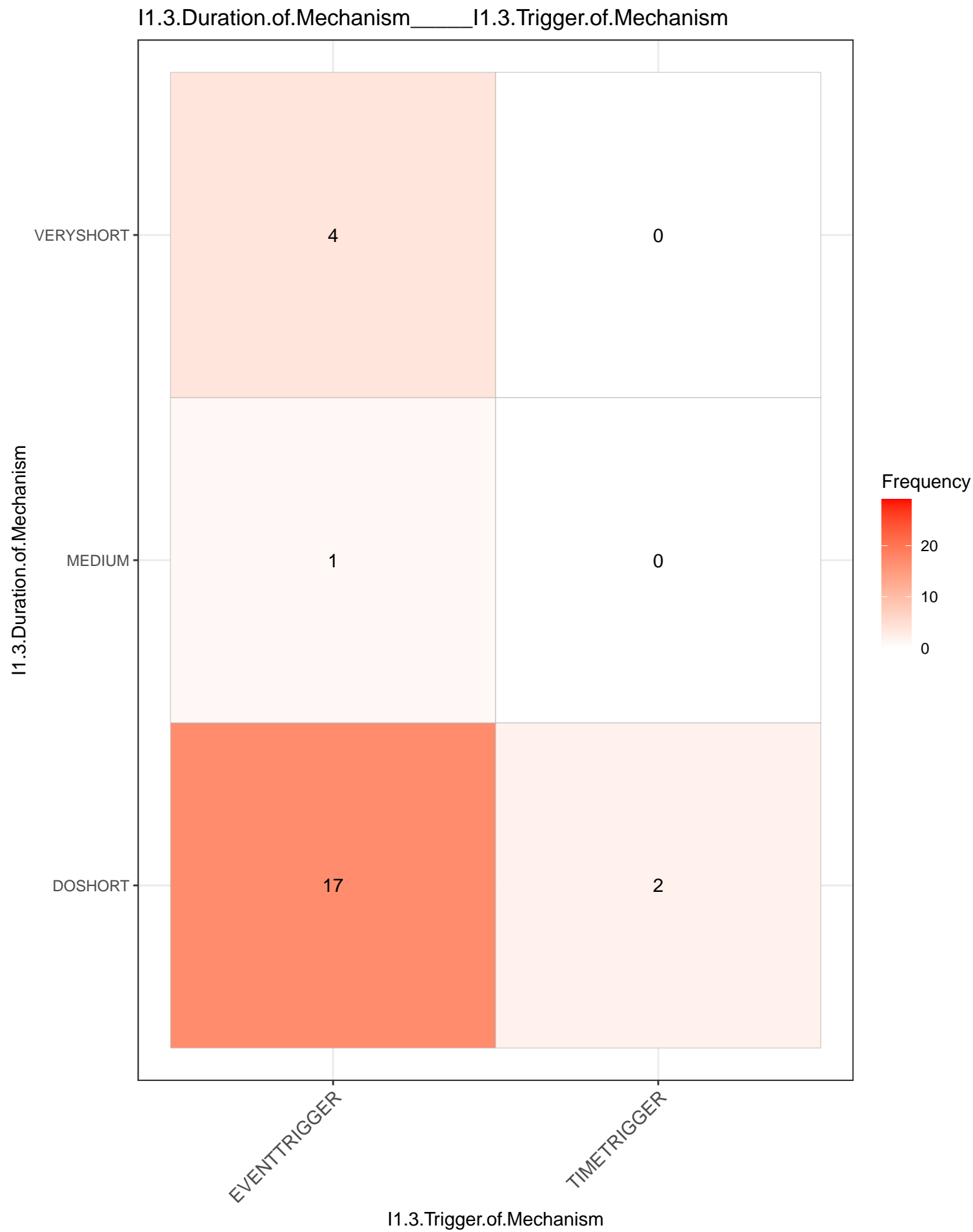
20

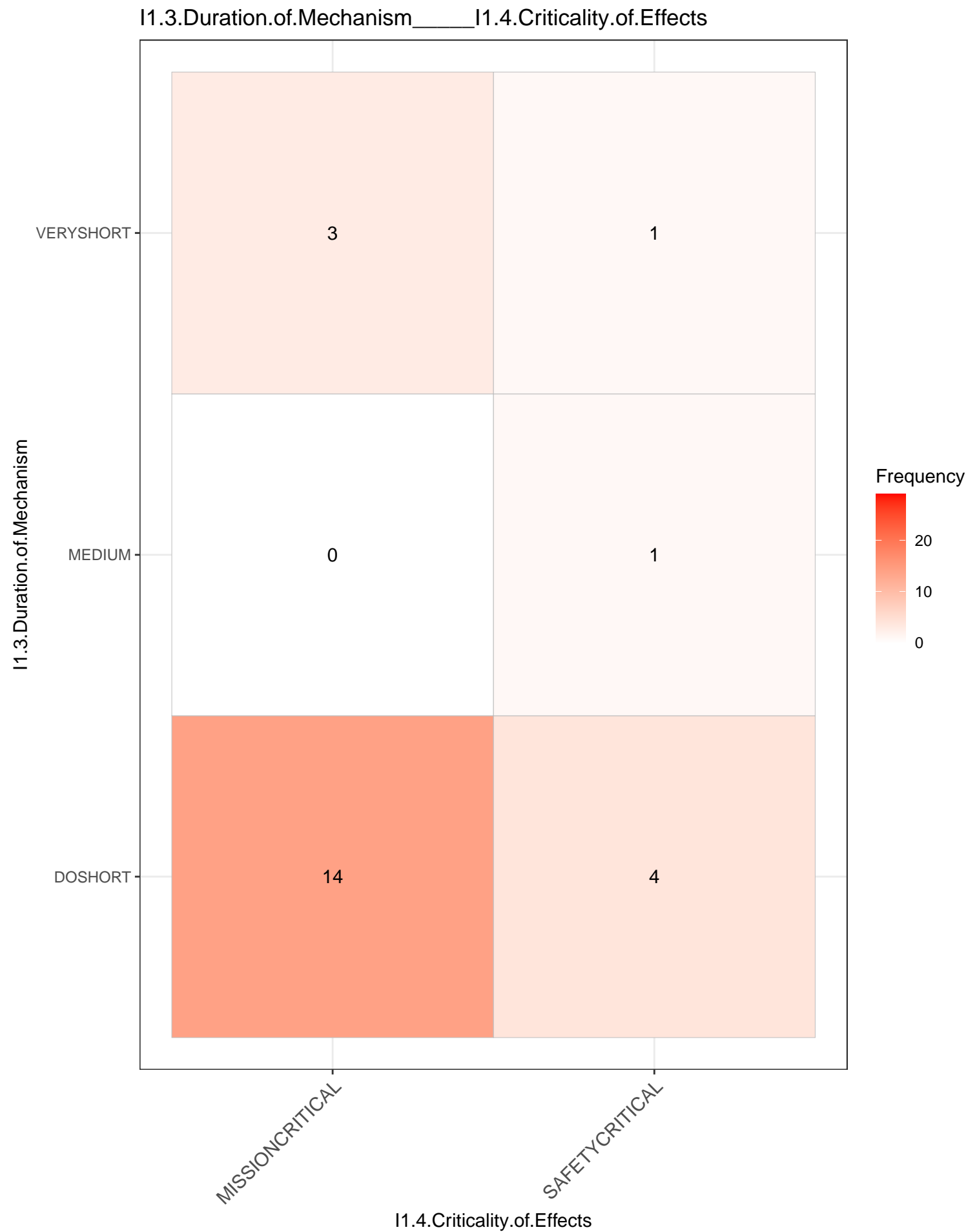
BESTEFFECT

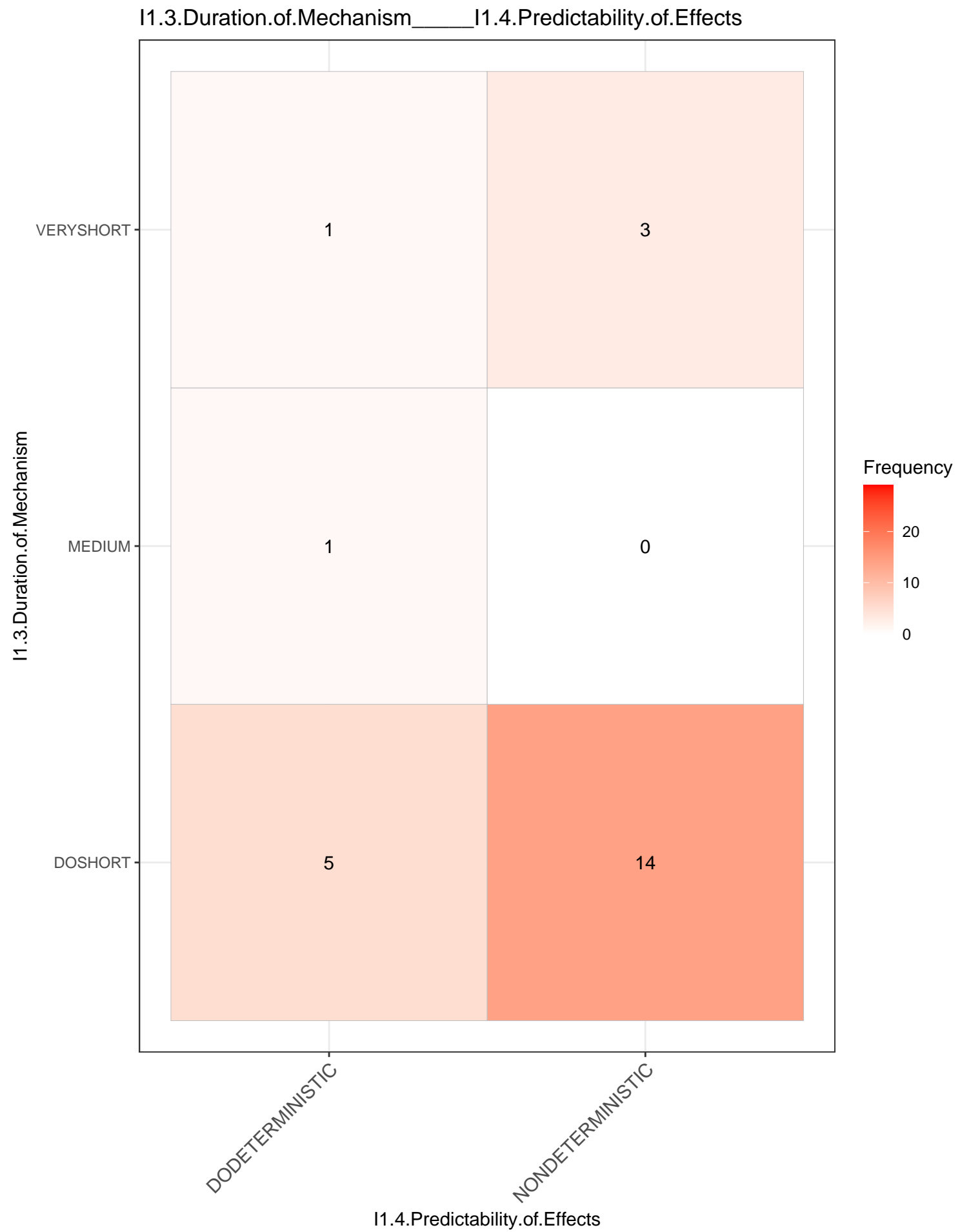
I1.3.Timeliness.of.Mechanism

Frequency









I1.3.Duration.of.Mechanism_____I1.4.Overhead.of.Effects

I1.3.Duration.of.Mechanism

VERYSHORT

1

1

2

MEDIUM

0

0

1

DOSHORT

13

3

1

DEPENDENT

DOSIGNIFICANT

INSIGNIFICANT

I1.4.Overhead.of.Effects

Frequency

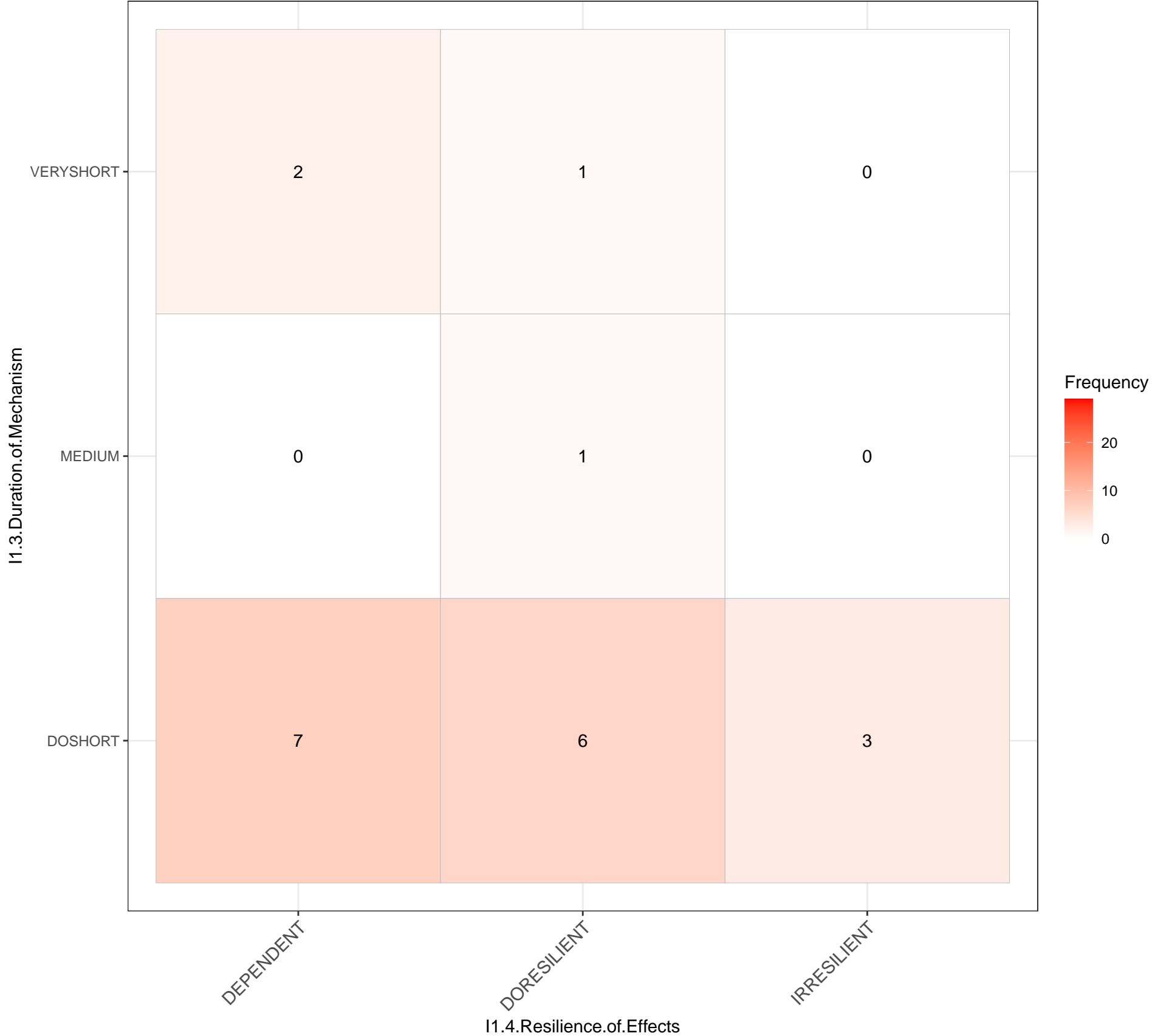


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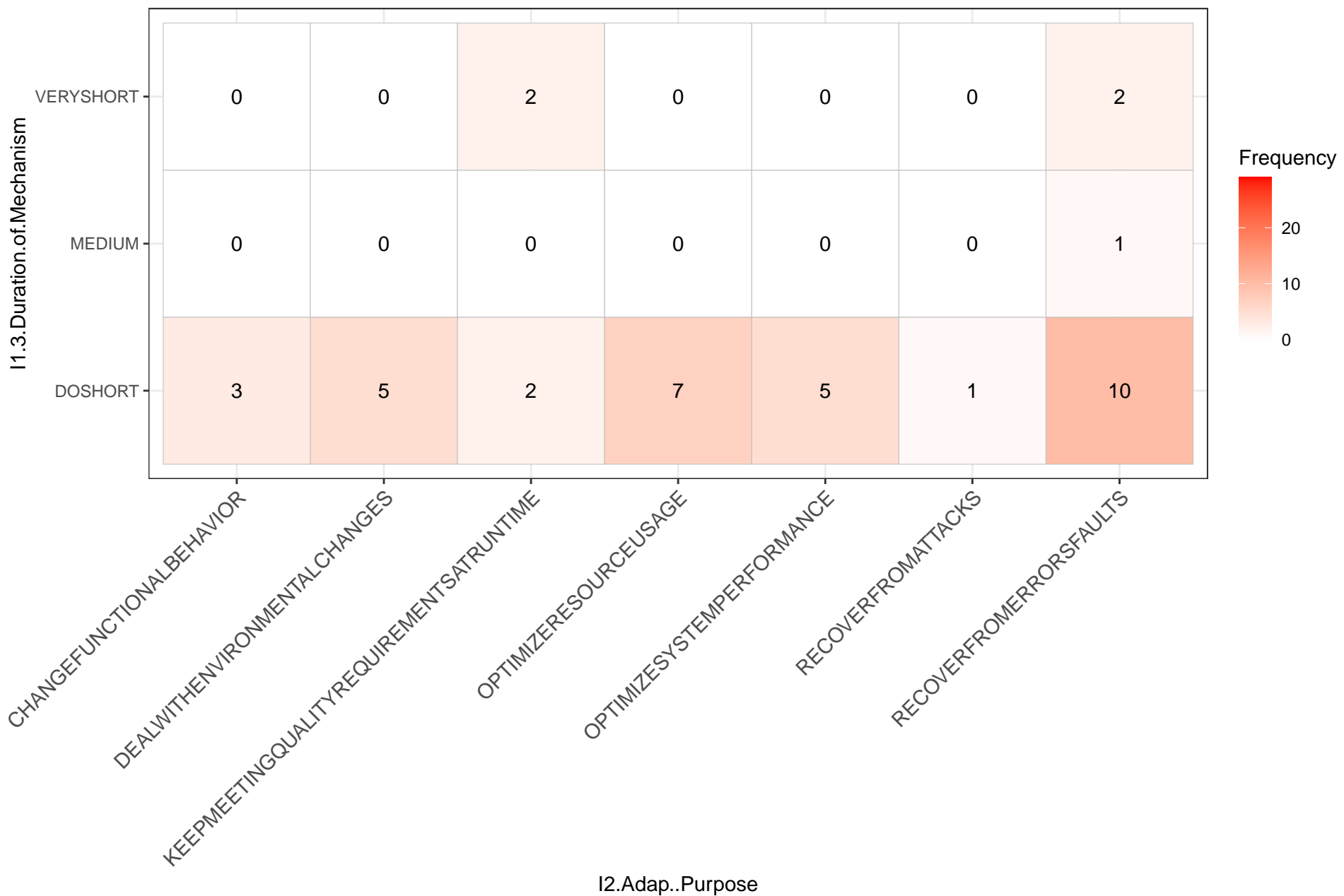
10

0

I1.3.Duration.of.Mechanism_____I1.4.Resilience.of.Effects



I1.3.Duration.of.Mechanism_____I2.Adap..Purpose



I1.3.Duration.of.Mechanism

I1.3.Duration.of.MechanismI3.Robot.Type

VERYSHORT	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	
MEDIUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
DOSHORT	0	1	1	2	1	2	0	1	0	2	1	0	0	1	1	2	0	1	1	1	1	1	3	1	0	0

Frequency



BOXERCLEARPATH
CRAWLERTERMINATORBOT
FIELDMOBILEROBOT
HETEROGENOUSROBOTS
INFOTAINMENTROBOT
KUKALIGHTWEIGHTROBOT4LWR4
MOBILEMANIPULATOR
MOBILEROBOTTERRESTRIAL
MOBILEROBOTTIAGO
MOBILESERVICEROBOT
MSUEVORALLYMOBILETERRESTRIAL
MULTIPLEHEXROTOR
NAOROBOT
PIONEER3DX
QUADROCOPTER
RESCUE
SINGLESERVINGROTATIONROBOT
TEDUSARTERRESTRIALSEARCH
TRIGLIDEINDUSTRIALASSEMBLY
TURTLEBOT
WAREHOUSEDELIVERYROBOT
WHICHISANINDUSTRIALAGV
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION

I3.Robot.Type

I1.3.Duration.of.Mechanism_____I4.Robo.SW

I1.3.Duration.of.Mechanism

VERYSHORT

MEDIUM

DOSHORT

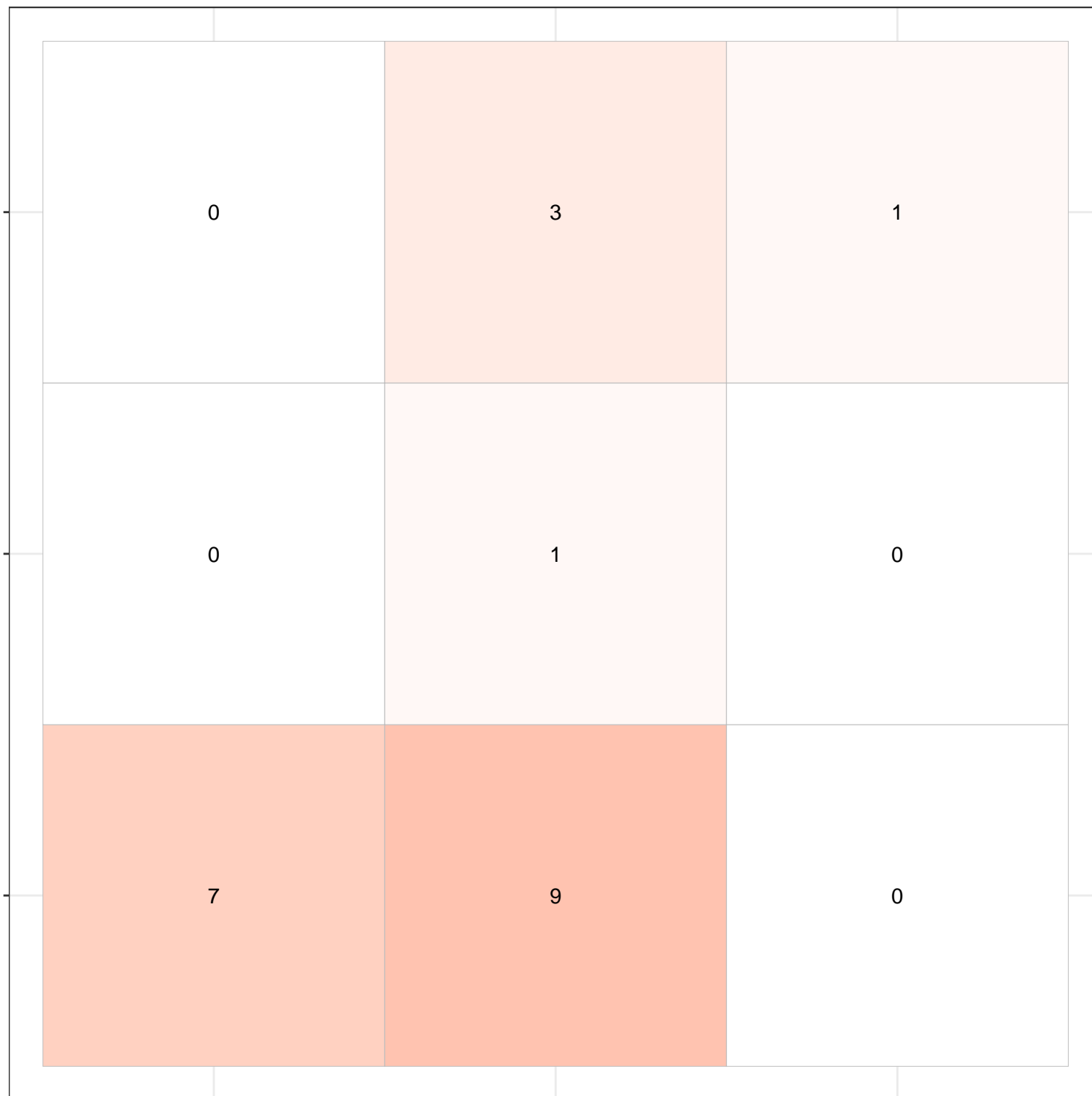
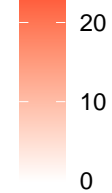
OTHER

ROS1

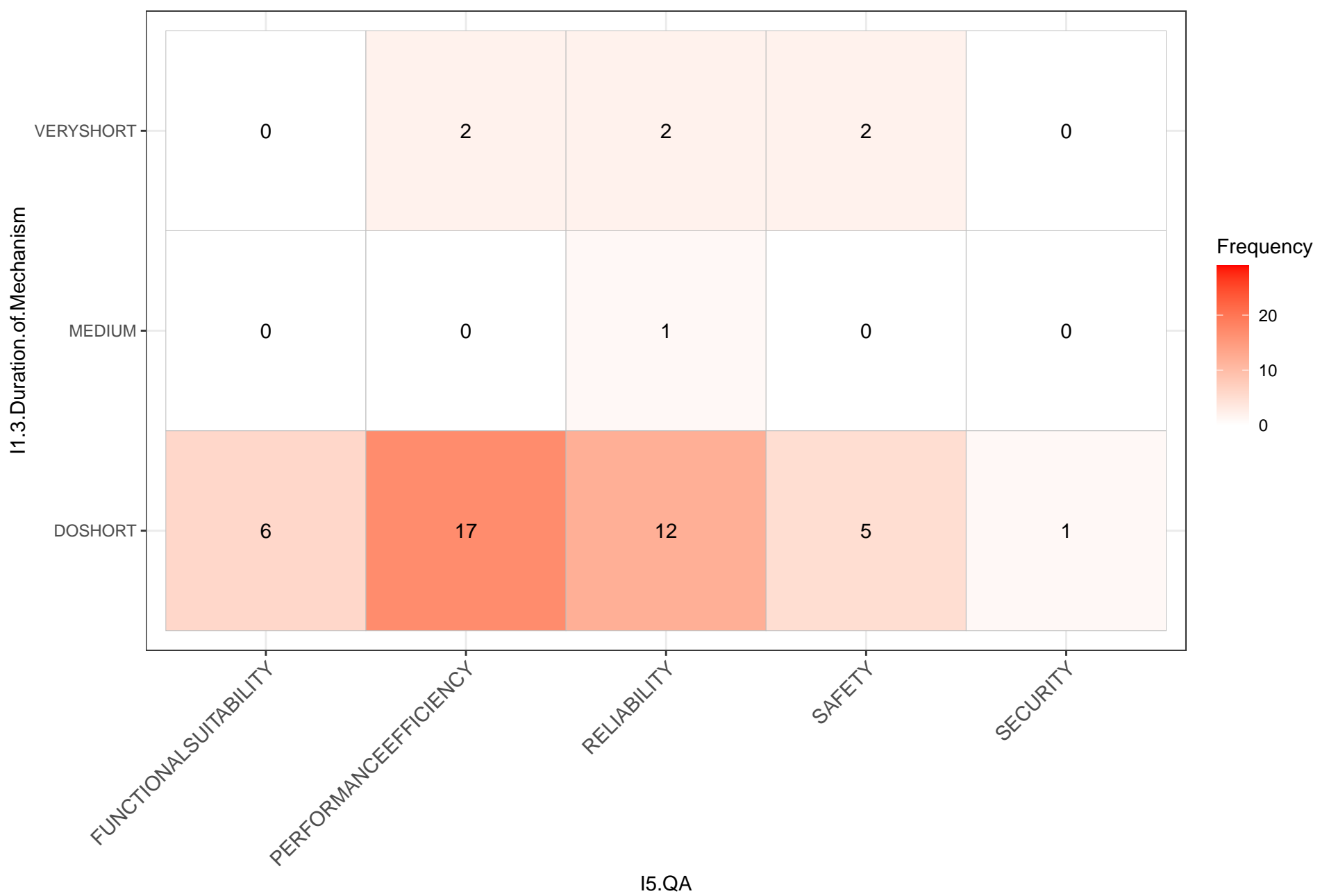
ROS2

I4.Robo.SW

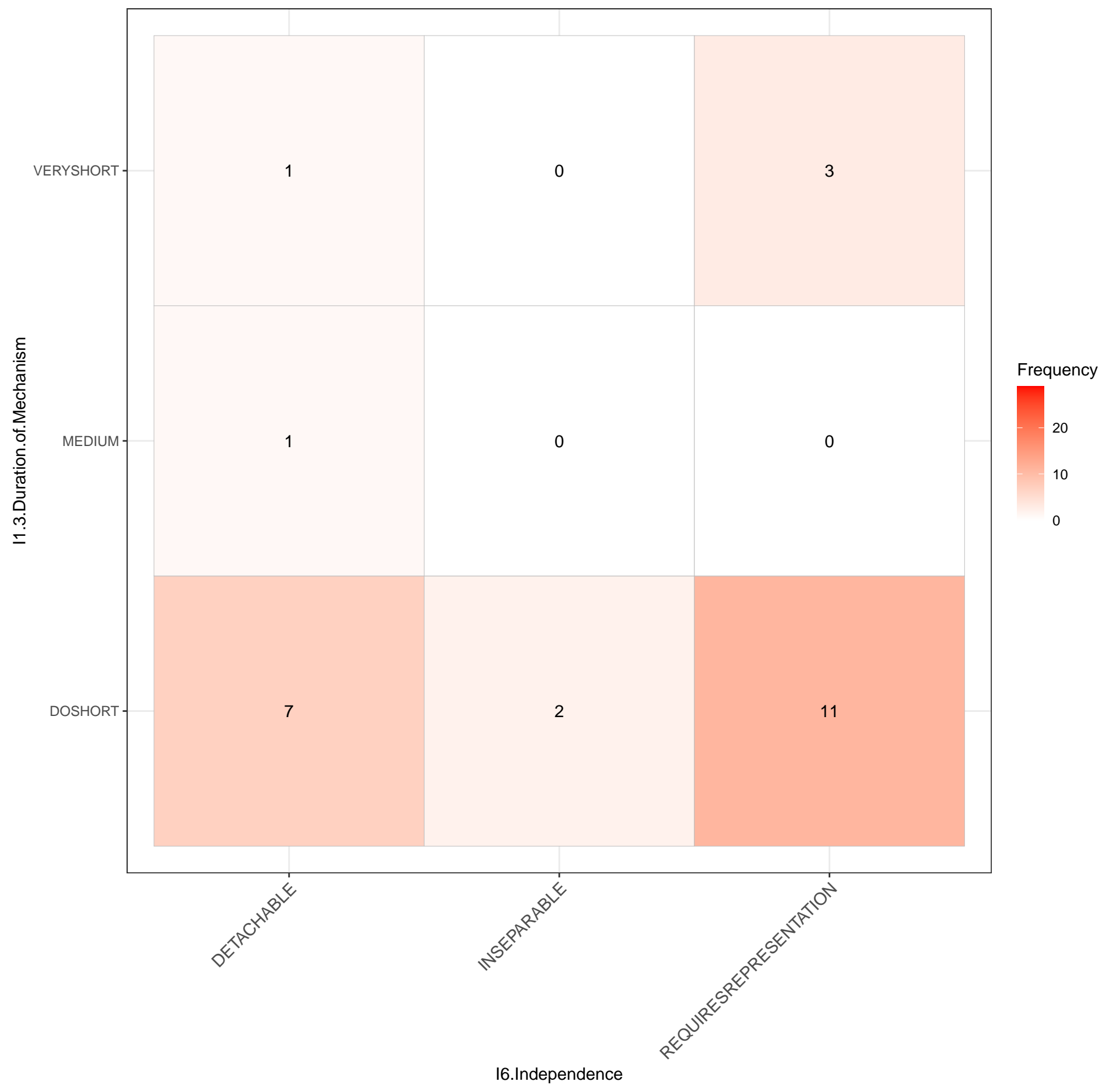
Frequency



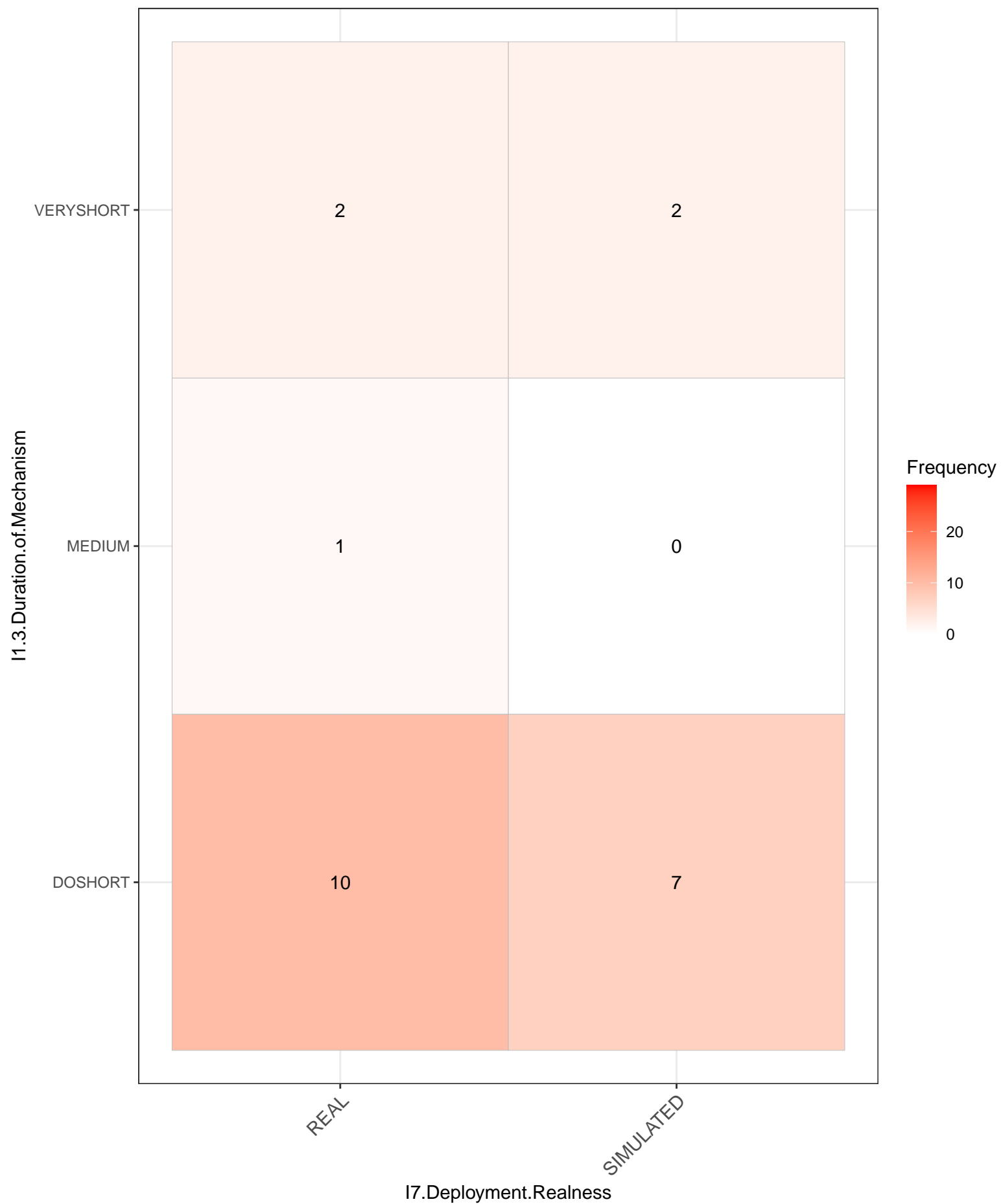
I1.3.Duration.of.Mechanism_____I5.QA



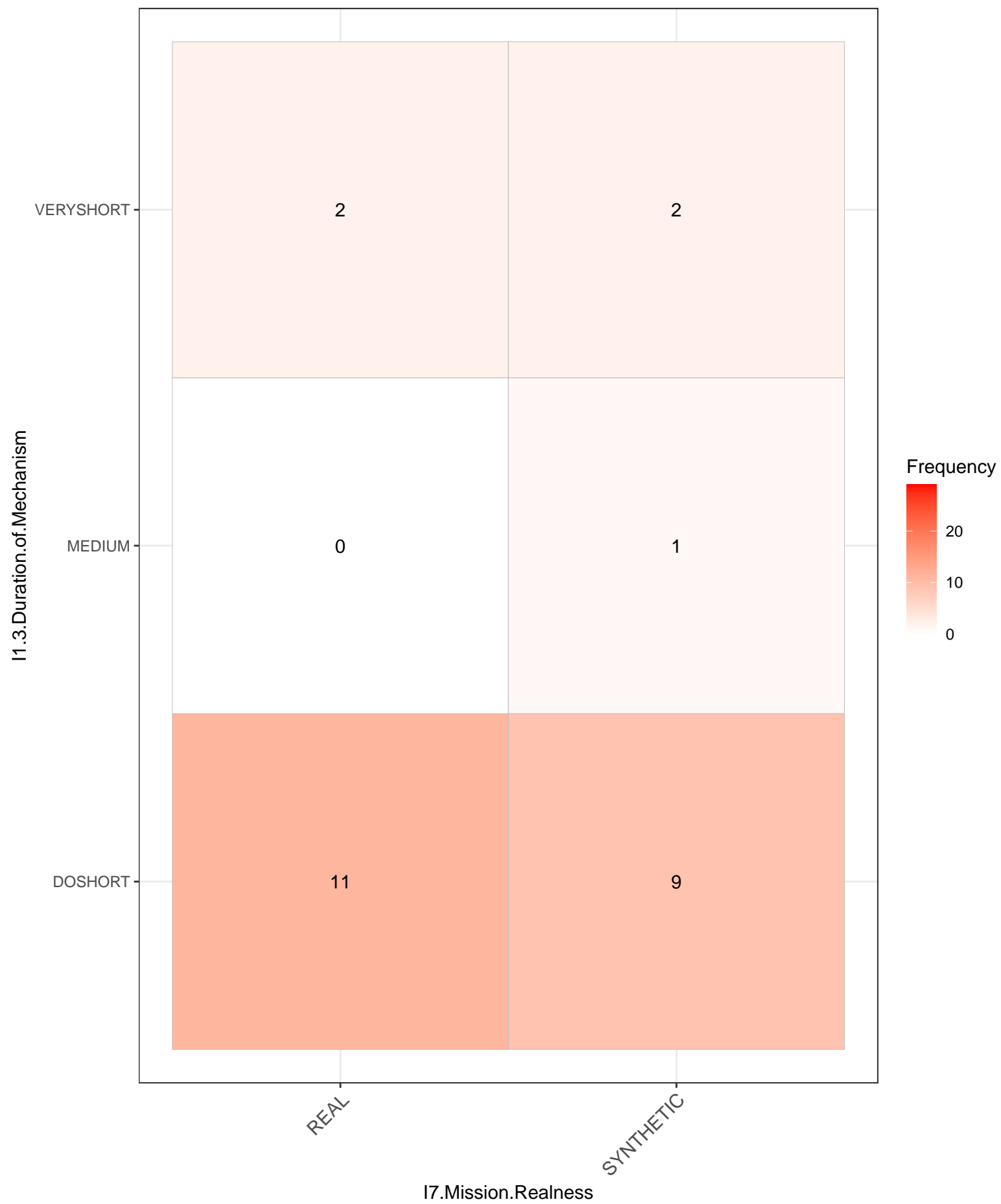
I1.3.Duration.of.Mechanism_____I6.Independence



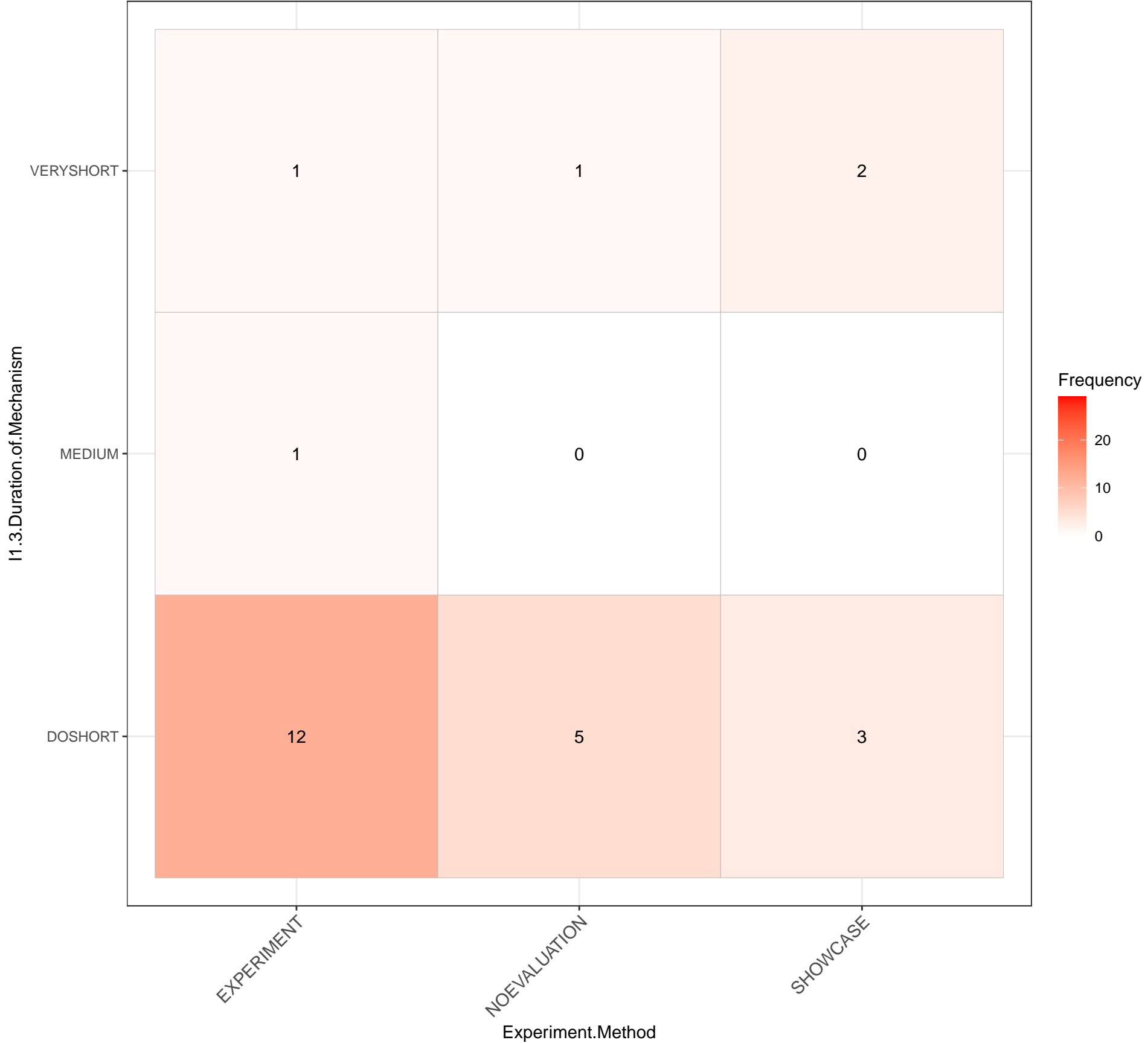
I1.3.Duration.of.Mechanism_____I7.Deployment.Realness



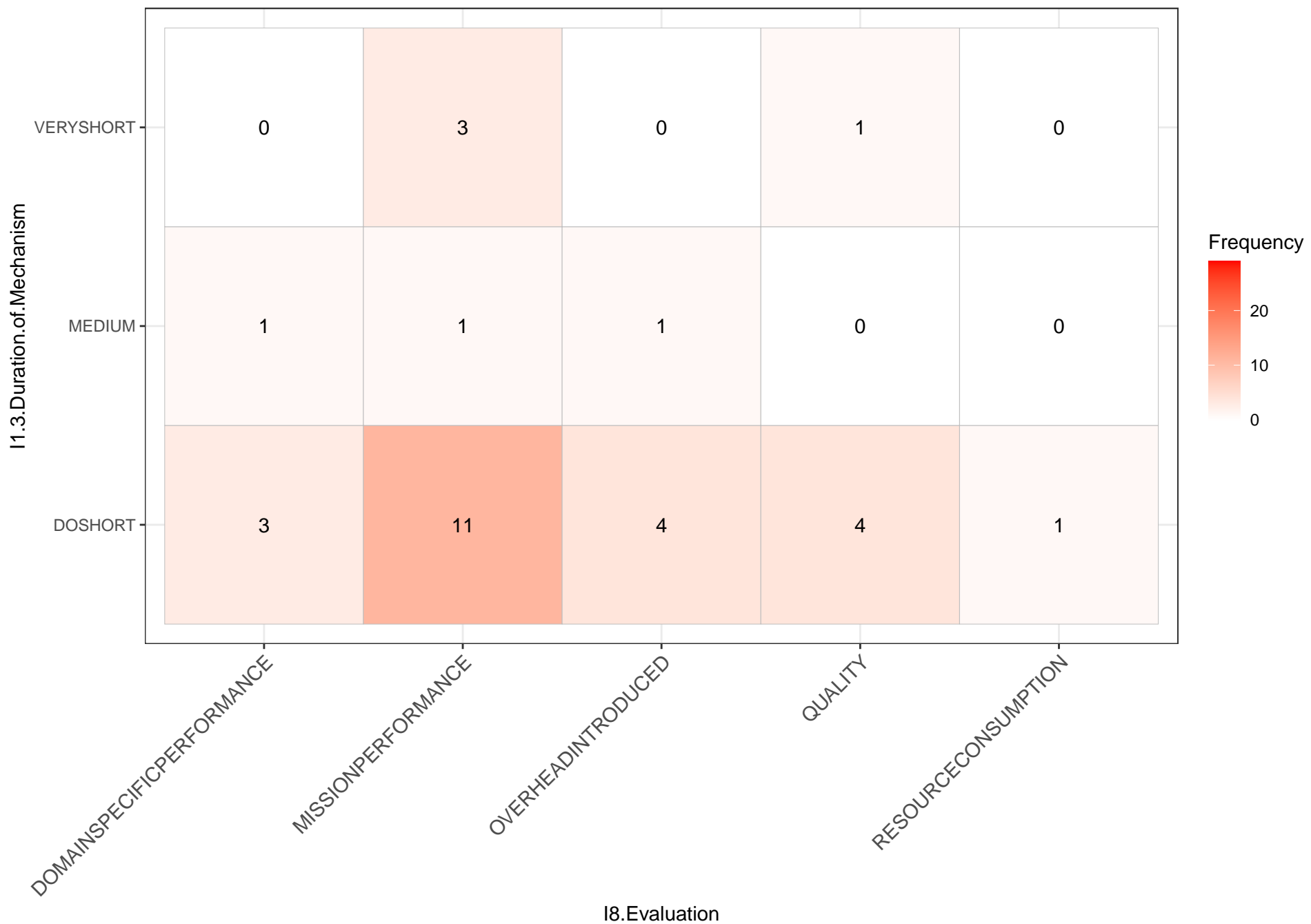
I1.3.Duration.of.Mechanism_____I7.Mission.Realness



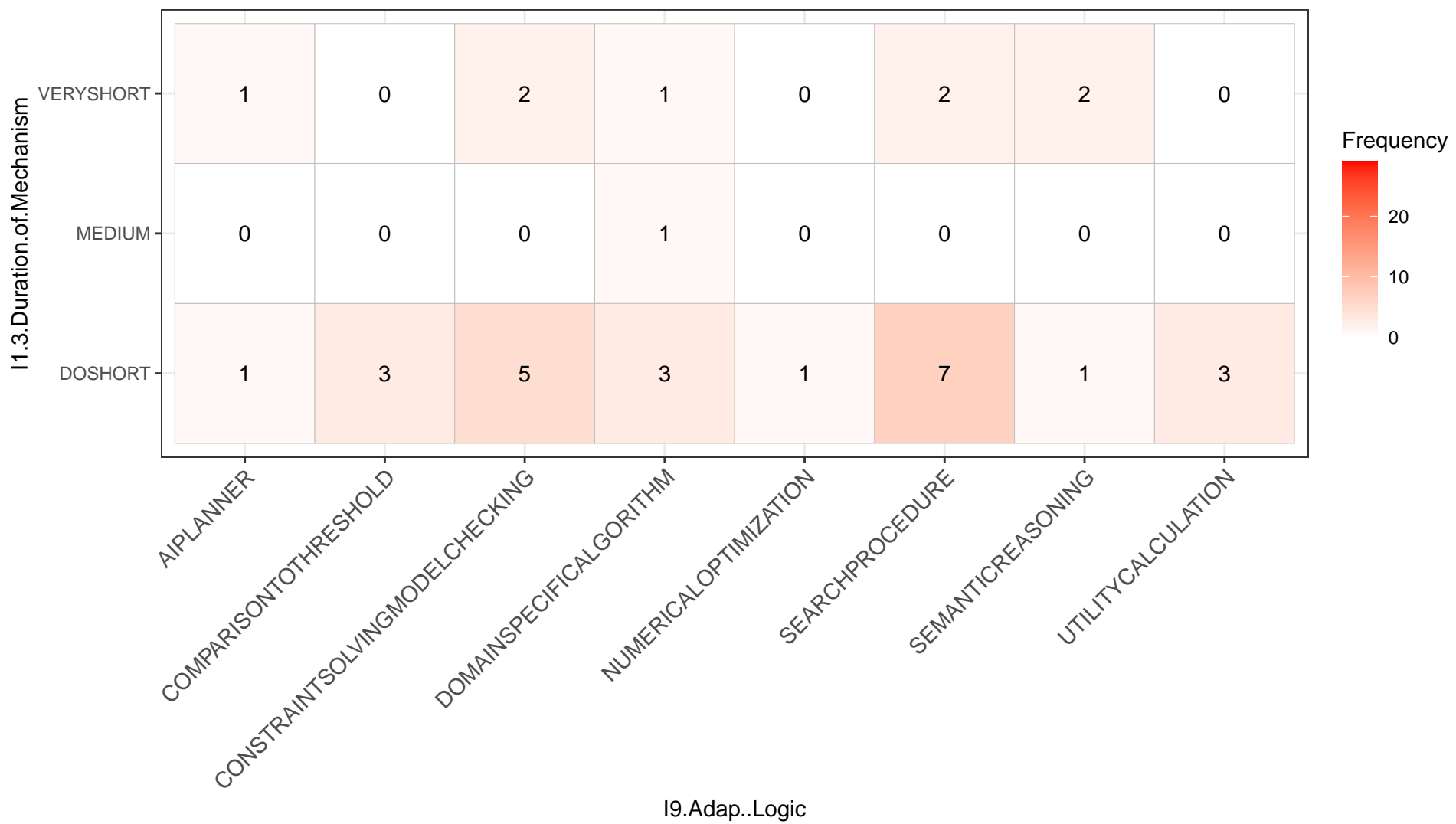
I1.3.Duration.of.Mechanism_____Experiment.Method



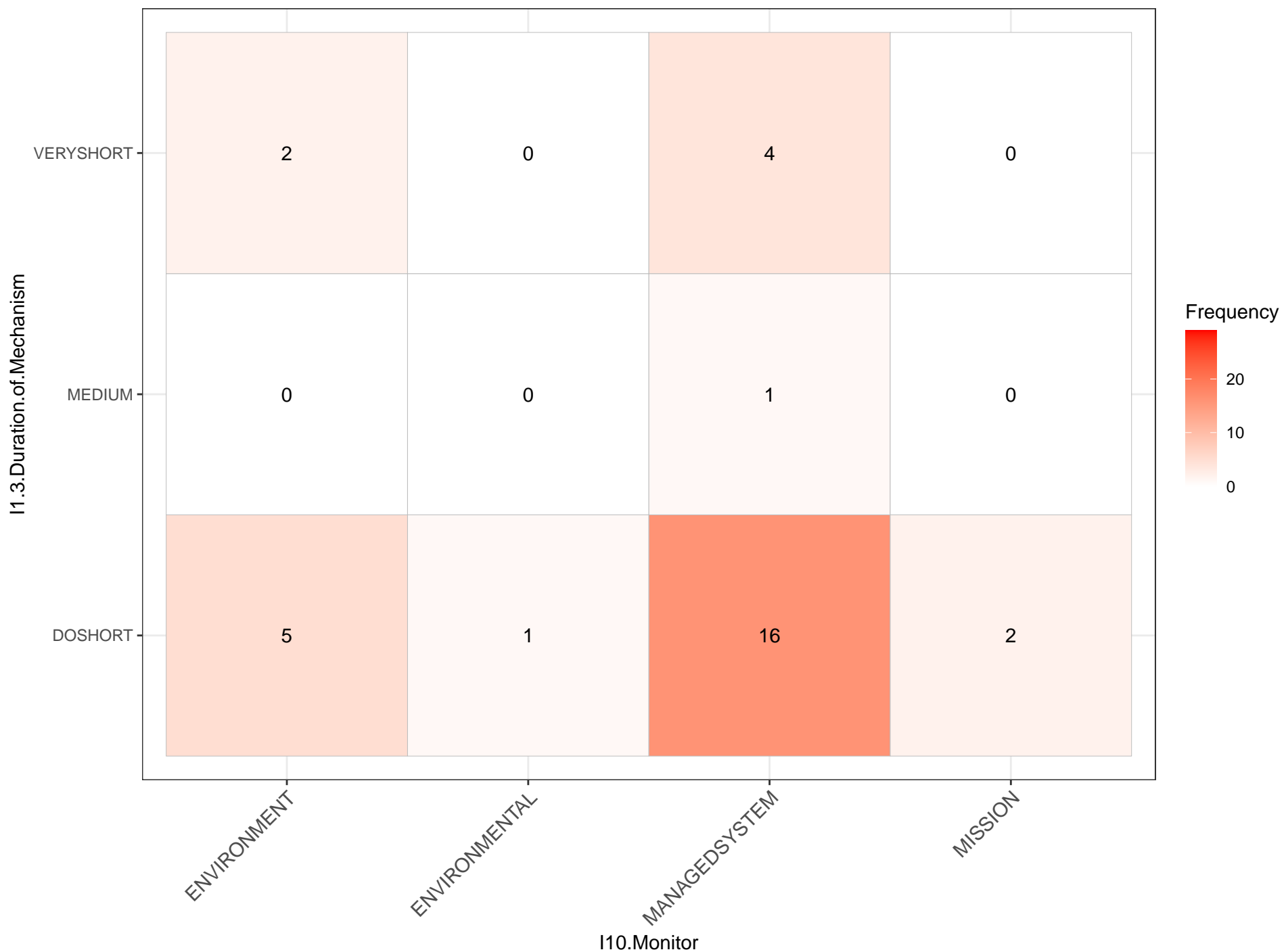
I1.3.Duration.of.Mechanism_____I8.Evaluation



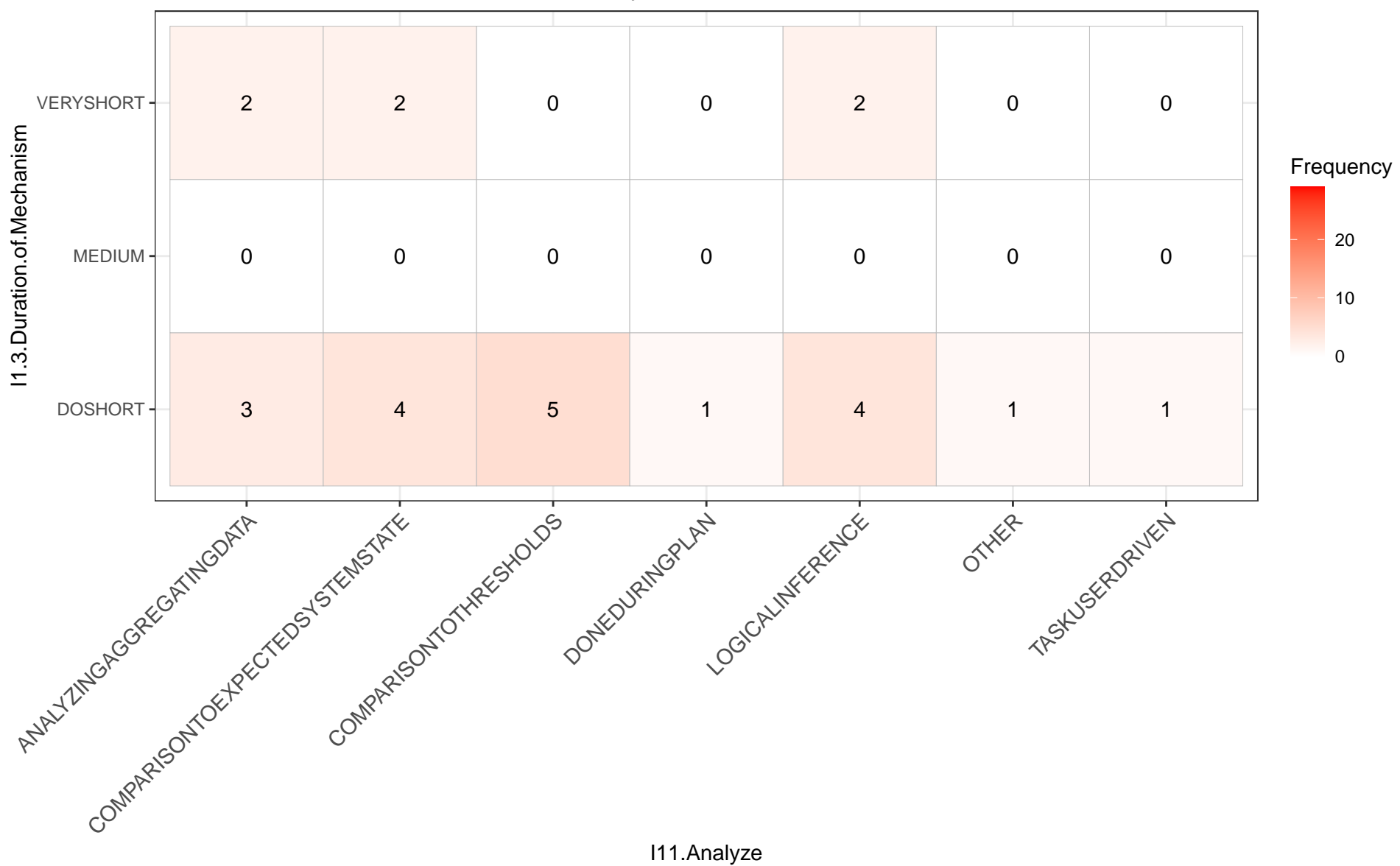
I1.3.Duration.of.Mechanism_____I9.Adap..Logic



I1.3.Duration.of.Mechanism_____I10.Monitor



I1.3.Duration.of.Mechanism____I11.Analyze



I1.3.Duration.of.Mechanism

VERYSHORT

MEDIUM

DOSHORT

Frequency

20

10

0

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPANNINGLANGUAGES

I12.Plan

1

2

1

0

1

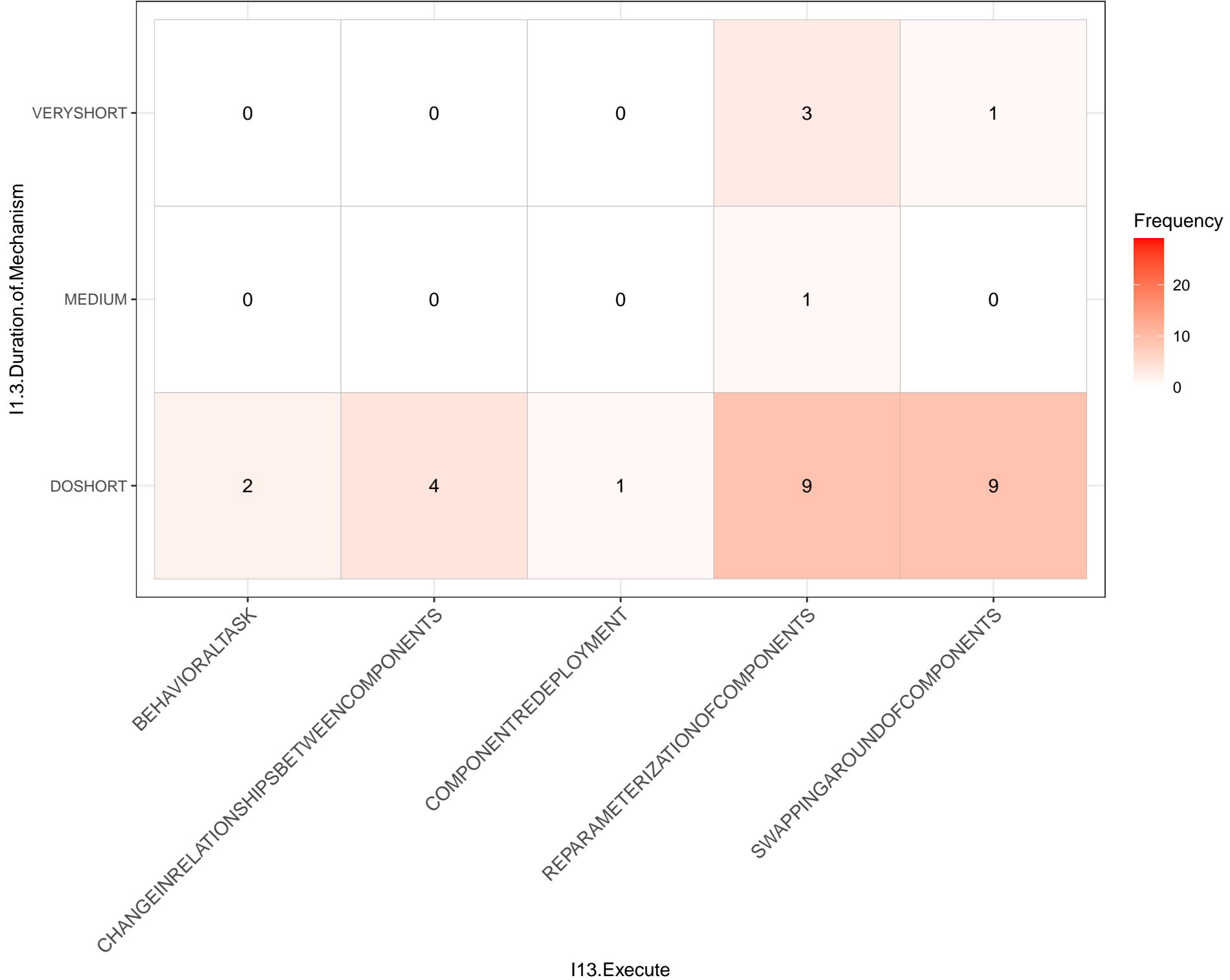
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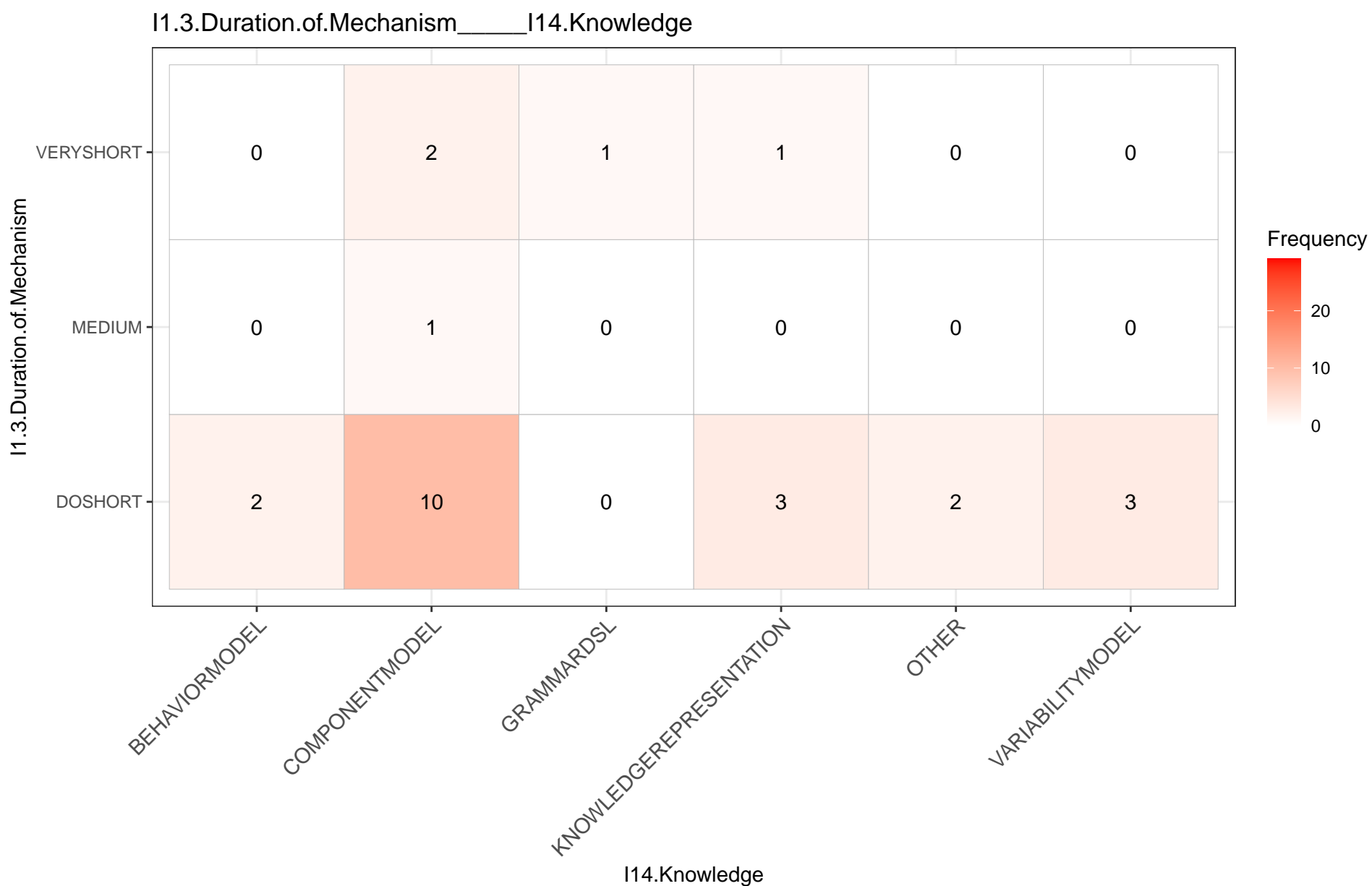
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8

1

I1.3.Duration.of.Mechanism_____I13.Execute





I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I1.3.Trigger.of.Mechanism

BESTEFFORT

23

2

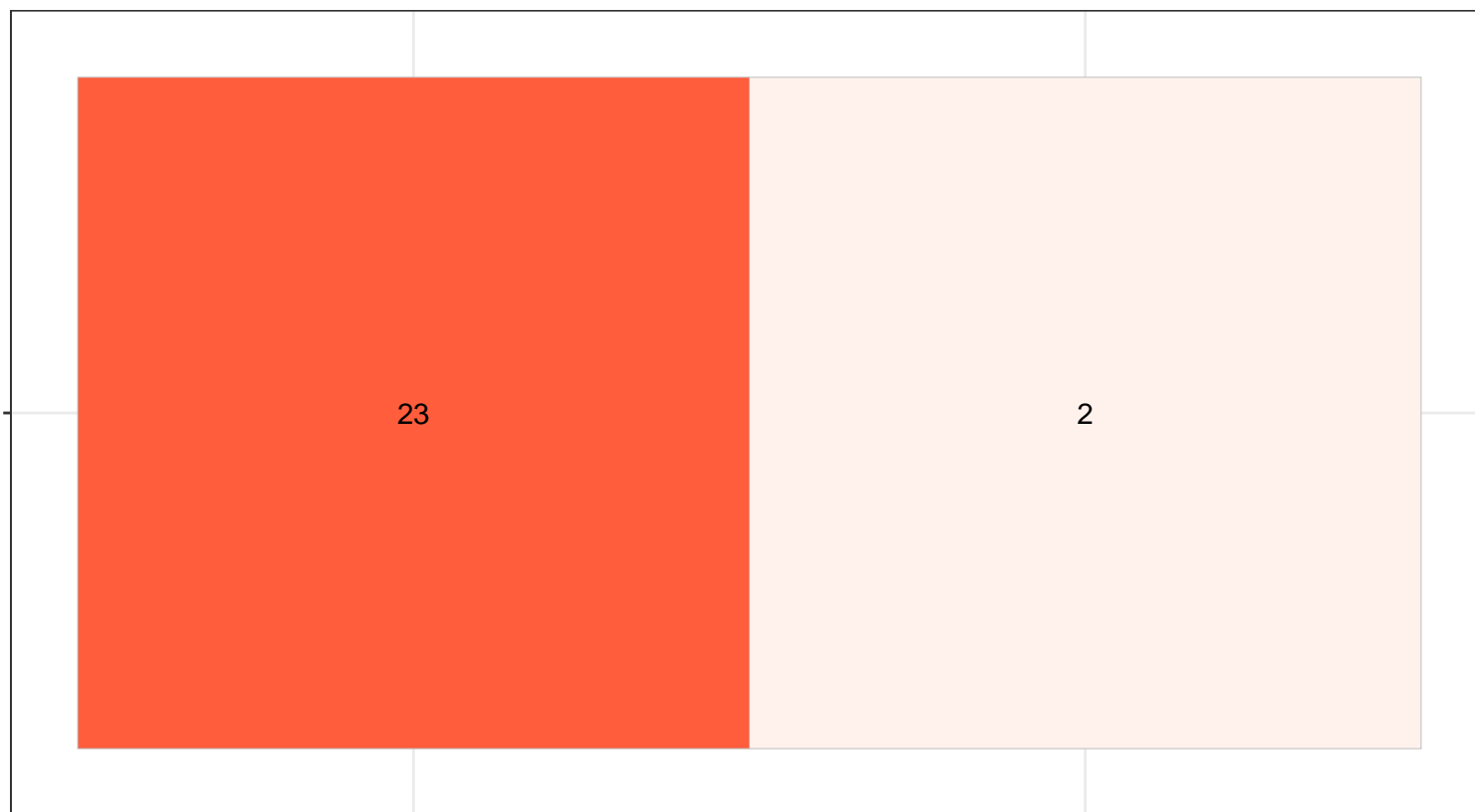
EVENTTRIGGER

TIMETRIGGER

I1.3.Trigger.of.Mechanism

Frequency

20
10
0



I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I1.4.Criticality.of.Effects

BESTEFFORT

18

6

MISSIONCRITICAL

SAFETYCRITICAL

I1.4.Criticality.of.Effects

Frequency



20

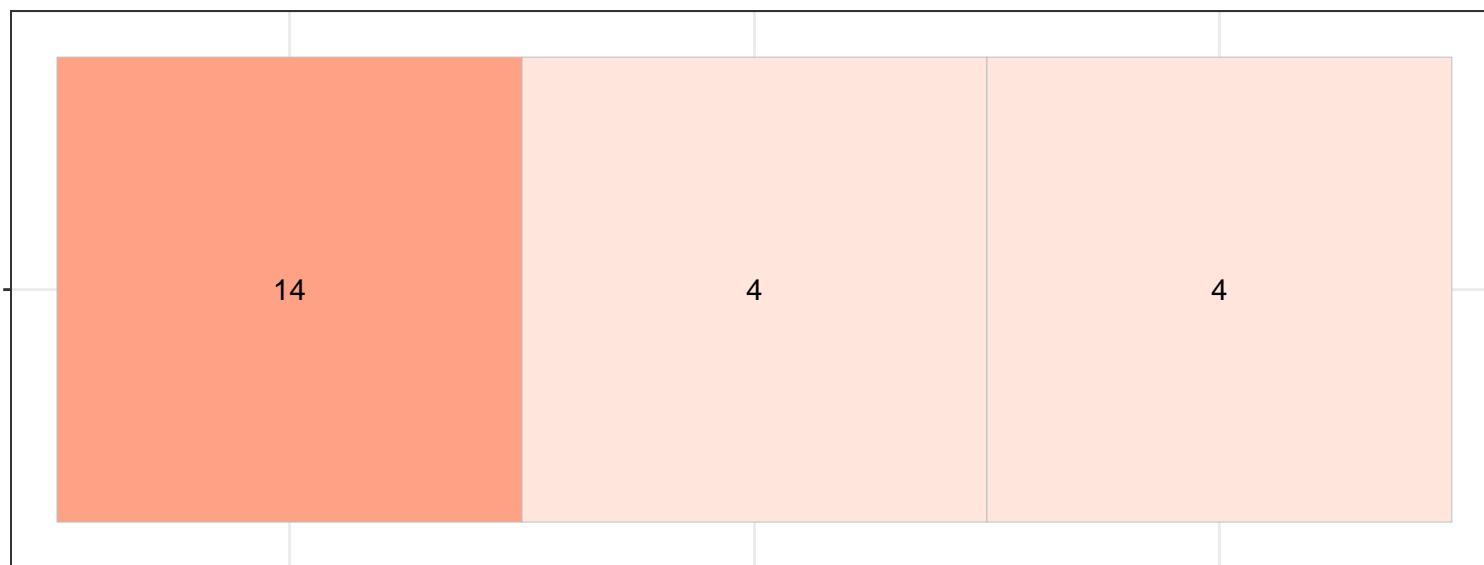
10

0

I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I1.4.Overhead.of.Effects

BESTEFFORT



DEPENDENT

DOSIGNIFICANT

INSIGNIFICANT

I1.4.Overhead.of.Effects

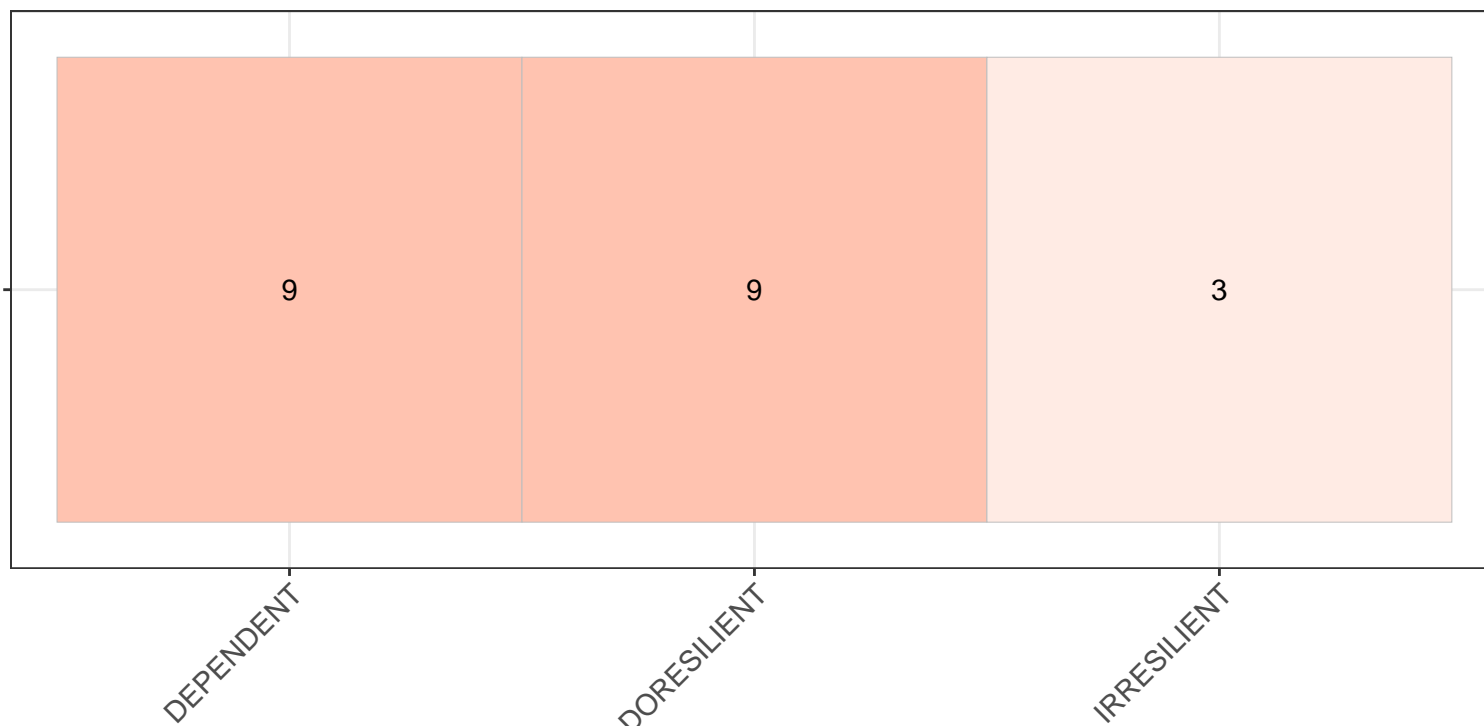
Frequency

20
10
0

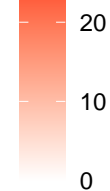
I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I1.4.Resilience.of.Effects

BESTEFFORT



Frequency



I1.4.Resilience.of.Effects

I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I3.Robot.Type

BESTEFFORT	1	1	1	2	1	2	0	1	1	2	1	1	0	1	1	2	1	1	1	1	1	1	1	4	1	1	1
------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

BOXERCLEARPATH	
CRAWLERTERMINATORBOT	
FIELDMOBILEROBOTS	
HETEROGENOUSROBOTS	
HEXMANIPULATOR	
INFOTAINMENTROBOTMOBILESERVICEROBOT	
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	
MOBILEROBOTTERRESTRIAL	
MOBILEROBOTTIAGO	
MOBILESERVICEROBOT	
MSUEVORALLYMOBILETERRESTRIAL	
MULTIPLEHEXROTOR	
NAOROBOT	
PIONEER3DX	
QUADROCOPTER	
SINGLESERVOINGROTATIONROBOT	
TEDUSARTERRESTRIALSEARCH	
TRIGLIDEINDUSTRIALASSEMBLY	
TURTLEBOT	
WAREHOUSEDELIVERYROBOT	
WHICHISANINDUSTRIALAGV	
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCTORFOREVALUATION	

Frequency

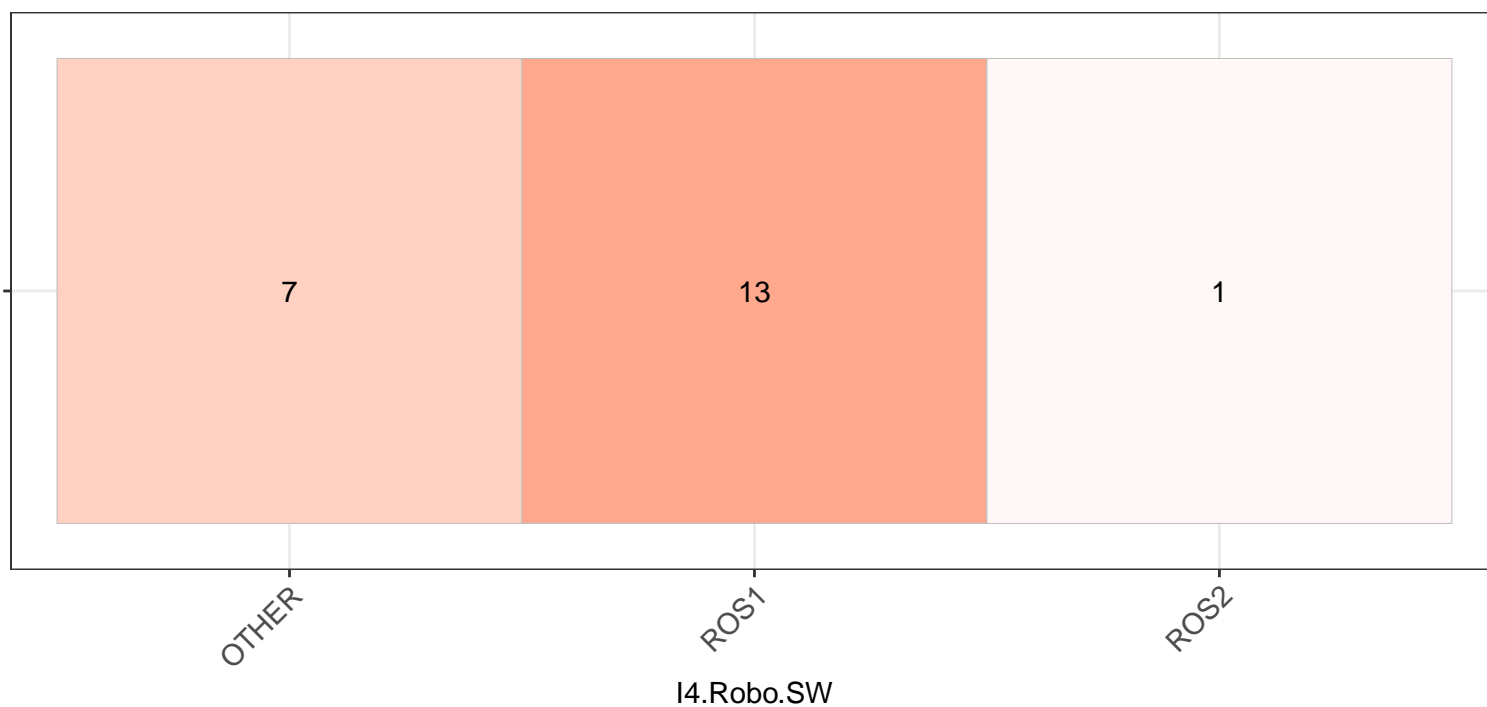


I3.Robot.Type

I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I4.Robo.SW

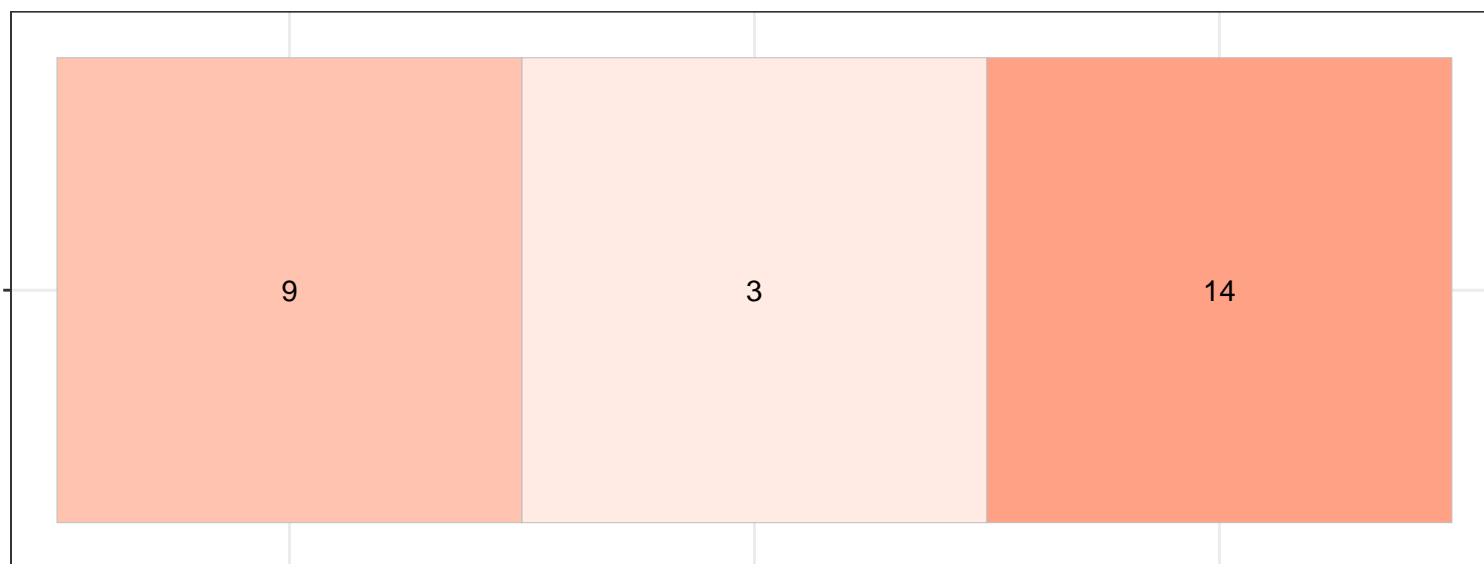
BESTEFFORT



I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I6.Independence

BESTEFFORT



DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence

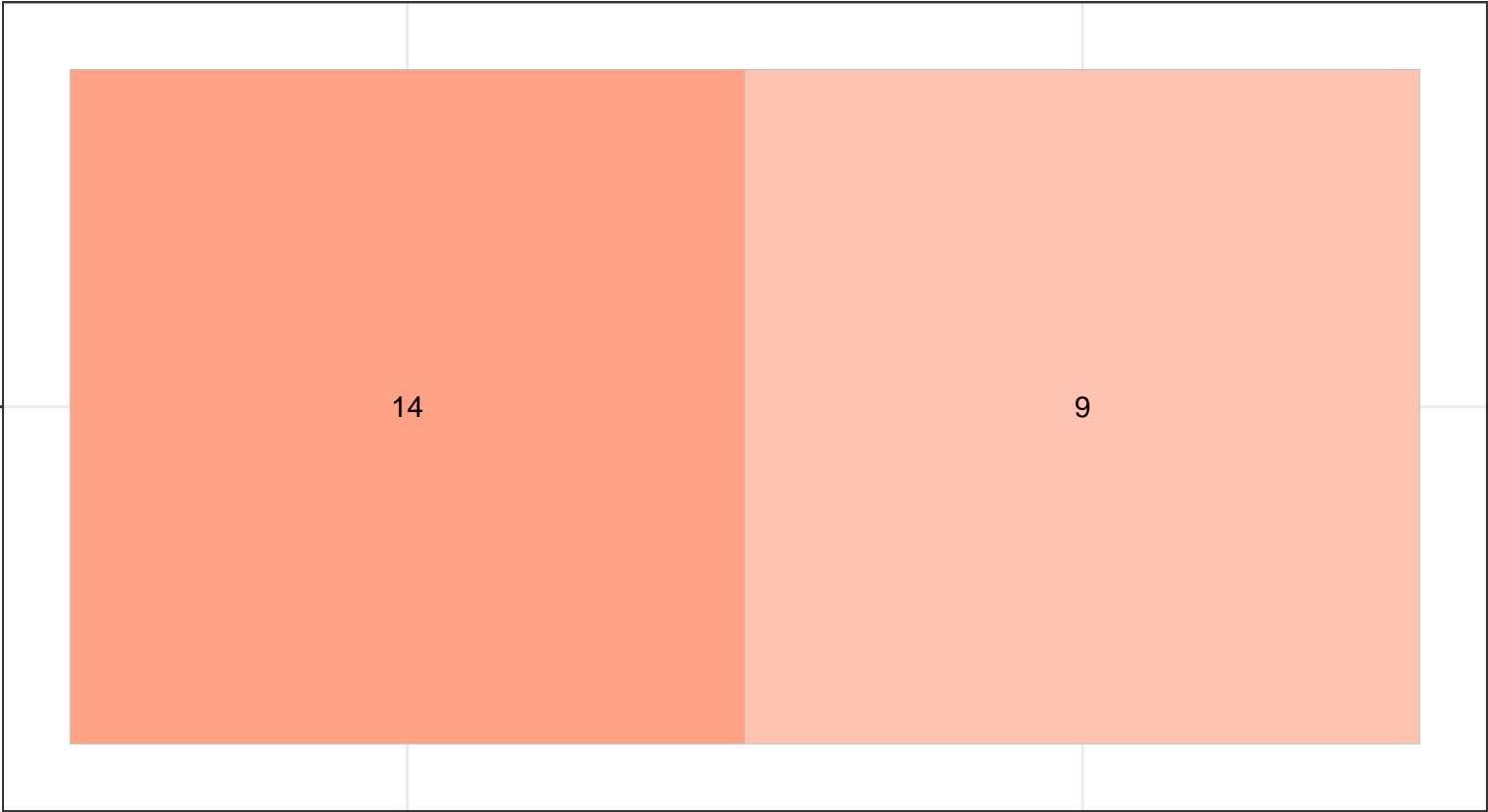
Frequency



I1.3.Timeliness.of.Mechanism_____I7.Deployment.Realness

I1.3.Timeliness.of.Mechanism

BESTEFFORT



REAL

SIMULATED

I7.Deployment.Realness

Frequency



20

10

0

I1.3.Timeliness.of.Mechanism_____I7.Mission.Realness

I1.3.Timeliness.of.Mechanism

BESTEFFORT

13

13

REAL

SYNTHETIC

I7.Mission.Realness

Frequency



20

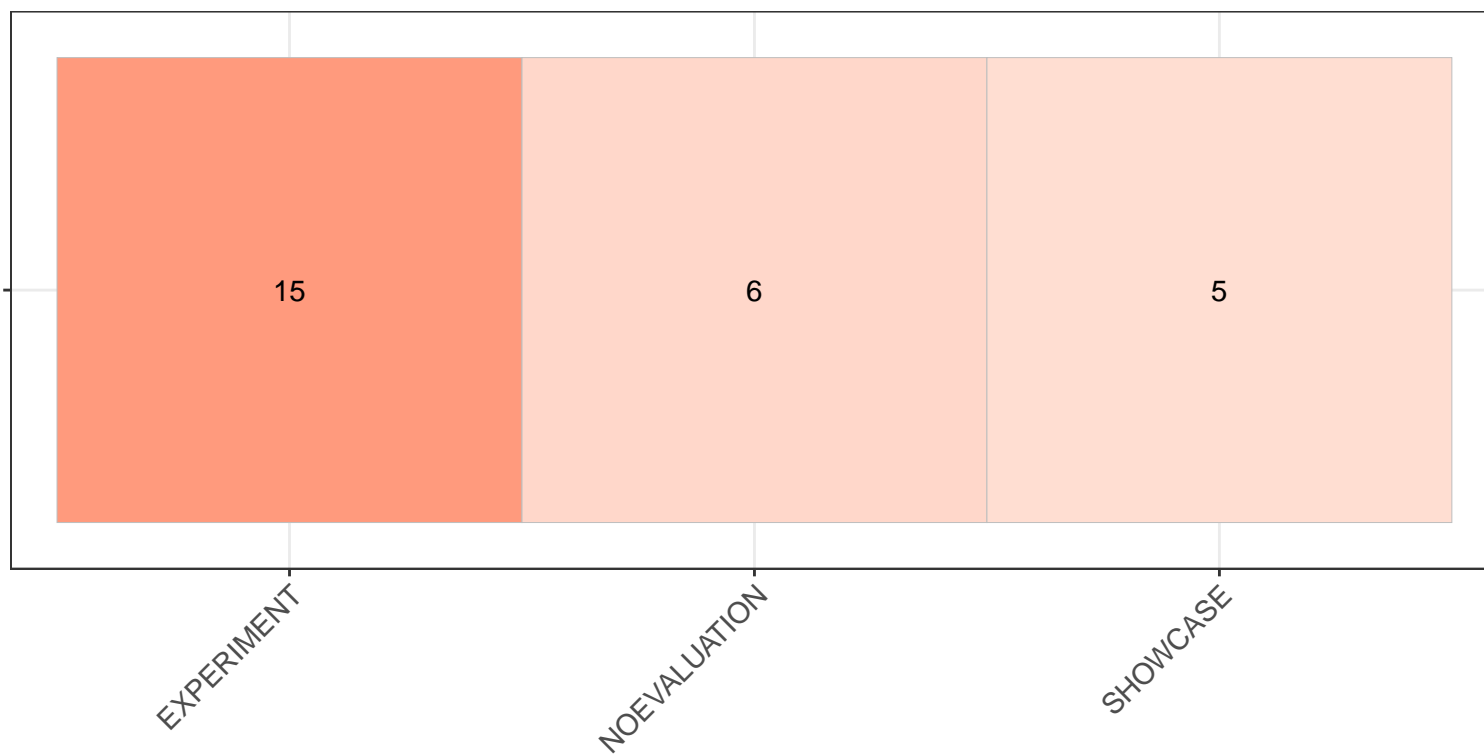
10

0

I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____Experiment.Method

BESTEFFORT



Experiment.Method

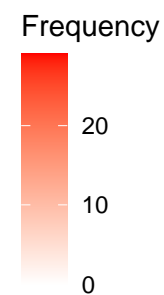
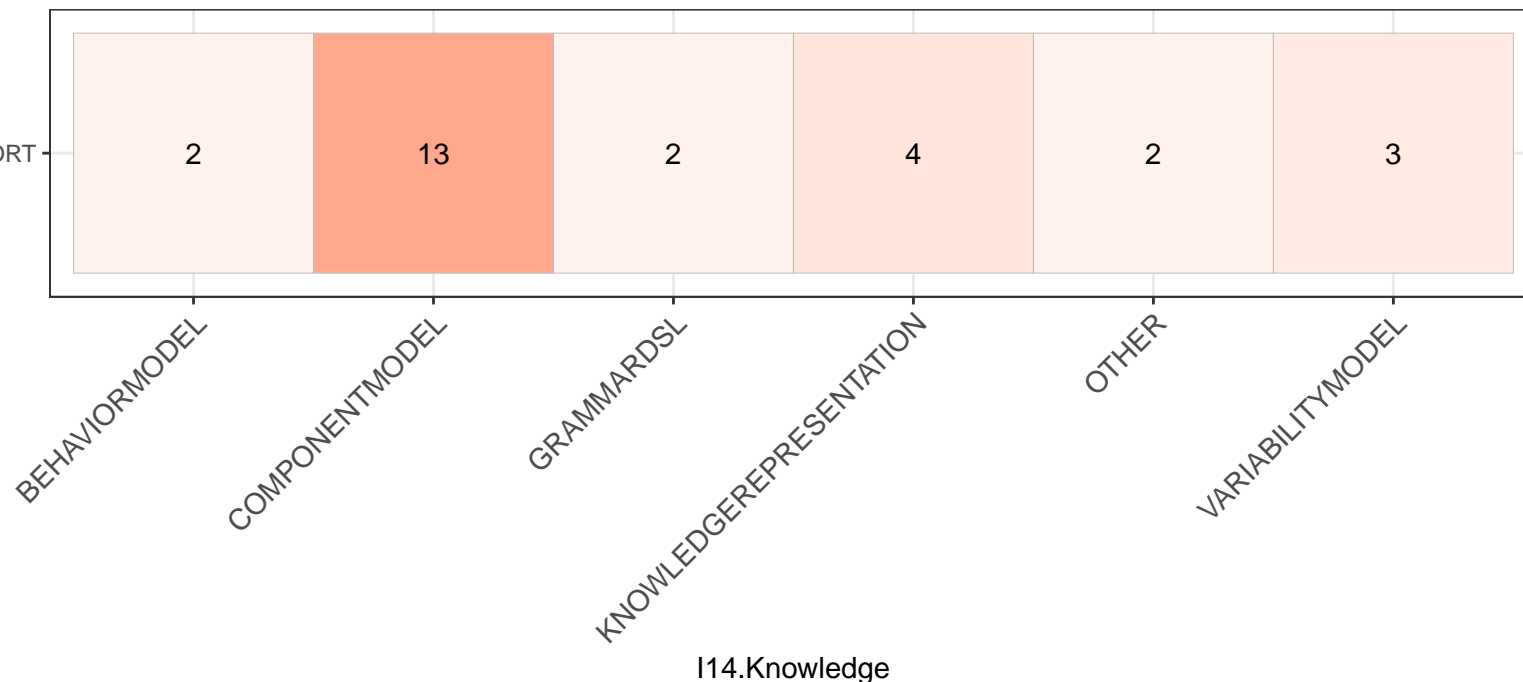
Frequency

20
10
0

I1.3.Timeliness.of.Mechanism

I1.3.Timeliness.of.Mechanism_____I14.Knowledge

BESTEFFORT



I1.3.Trigger.of.Mechanism_____I1.4.Criticality.of.Effects

I1.3.Trigger.of.Mechanism

TIMETRIGGER

2

0

EVENTTRIGGER

18

5

MISSIONCRITICAL

SAFETYCRITICAL

I1.4.Criticality.of.Effects

Frequency



20

10

0

I1.3.Trigger.of.Mechanism_____I1.4.Predictability.of.Effects

I1.3.Trigger.of.Mechanism

TIMETRIGGER

EVENTTRIGGER

DODETERMINISTIC

NONDETERMINISTIC

I1.4.Predictability.of.Effects

Frequency

20

10

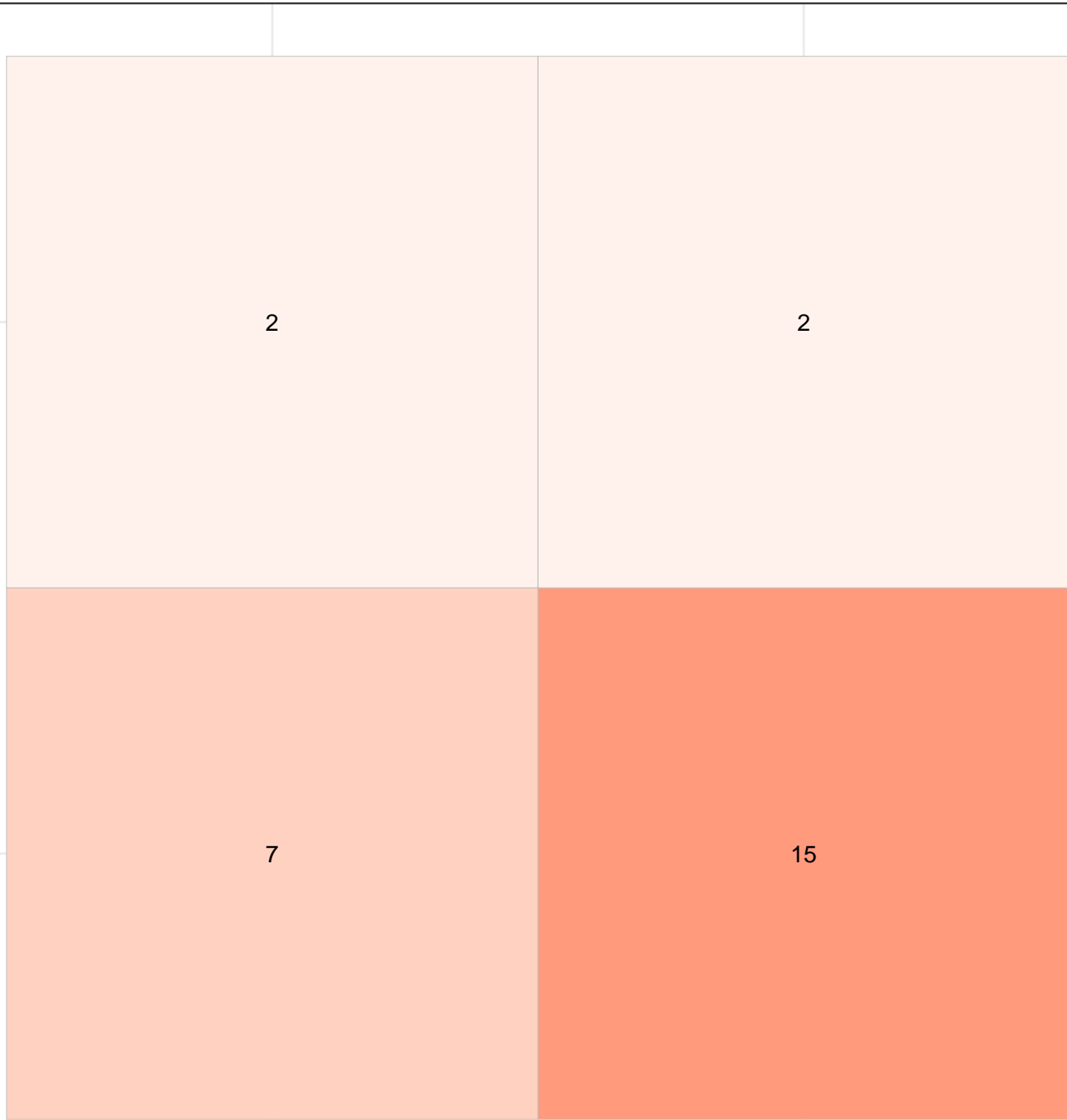
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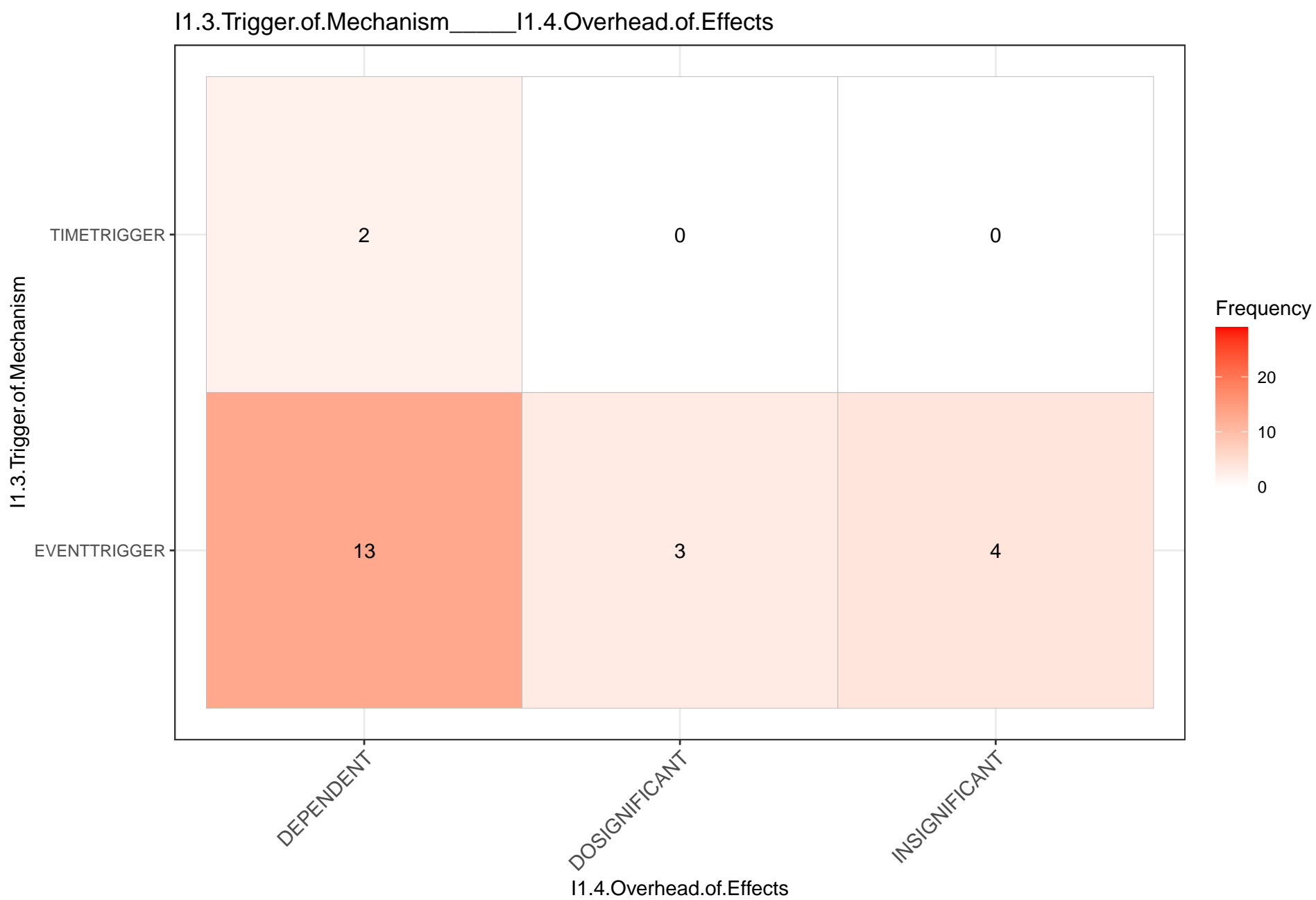
2

2

7

15





I1.3.Trigger.of.Mechanism_____I1.4.Resilience.of.Effects

I1.3.Trigger.of.Mechanism

TIMETRIGGER

2

0

0

EVENTTRIGGER

8

8

3

DEPENDENT

DORESILIENT

IRRESILIENT

I1.4.Resilience.of.Effects

Frequency



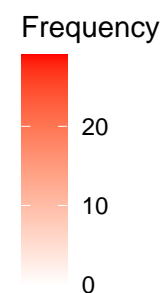
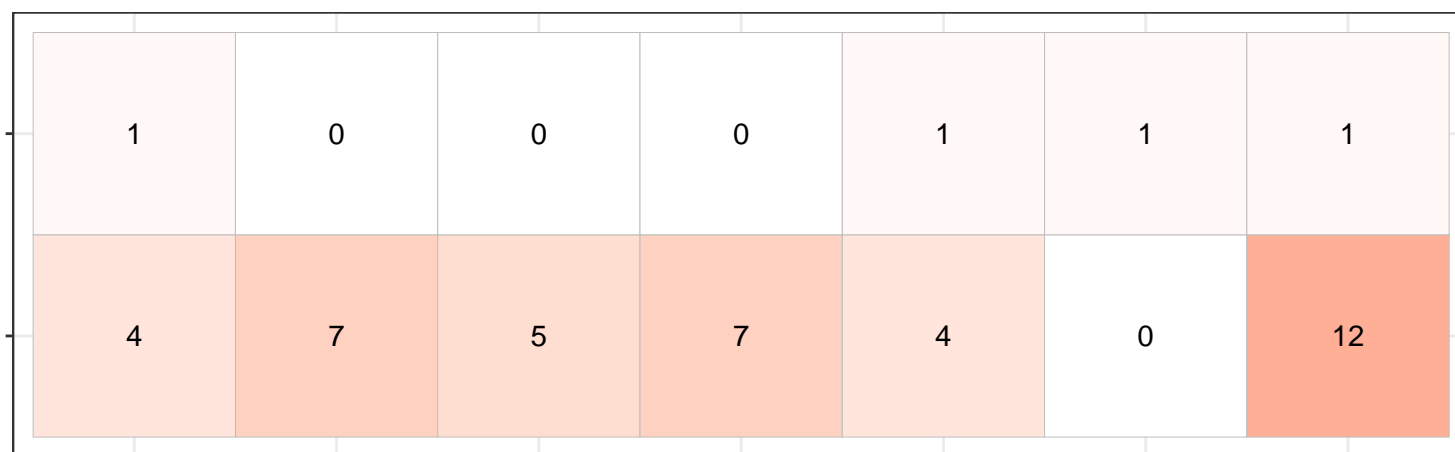
20

10

0

I1.3.Trigger.of.Mechanism

I1.3.Trigger.of.Mechanism_____I2.Adap..Purpose



CHANGEFUNCTIONALBEHAVIOR

DEALWITHENVIRONMENTALCHANGES

KEEPMEETINGQUALITYREQUIREMENTSATRUNTIME

OPTIMIZERESOURCEUSAGE

OPTIMIZESYSTEMPERFORMANCE

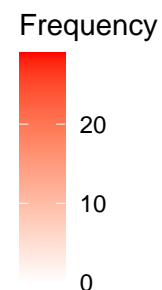
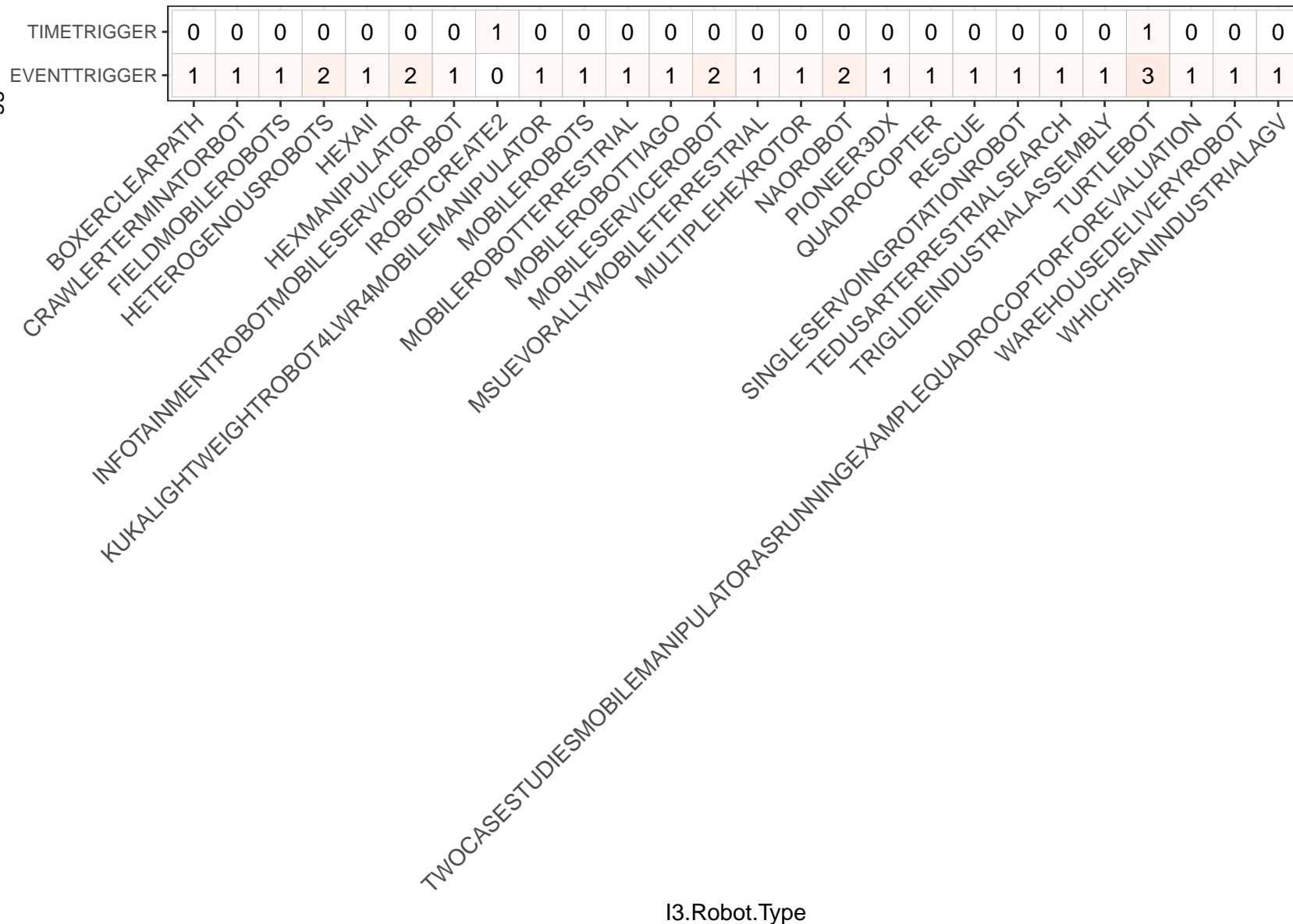
RECOVERFROMATTACKS

RECOVERFROMERRORSFAULTS

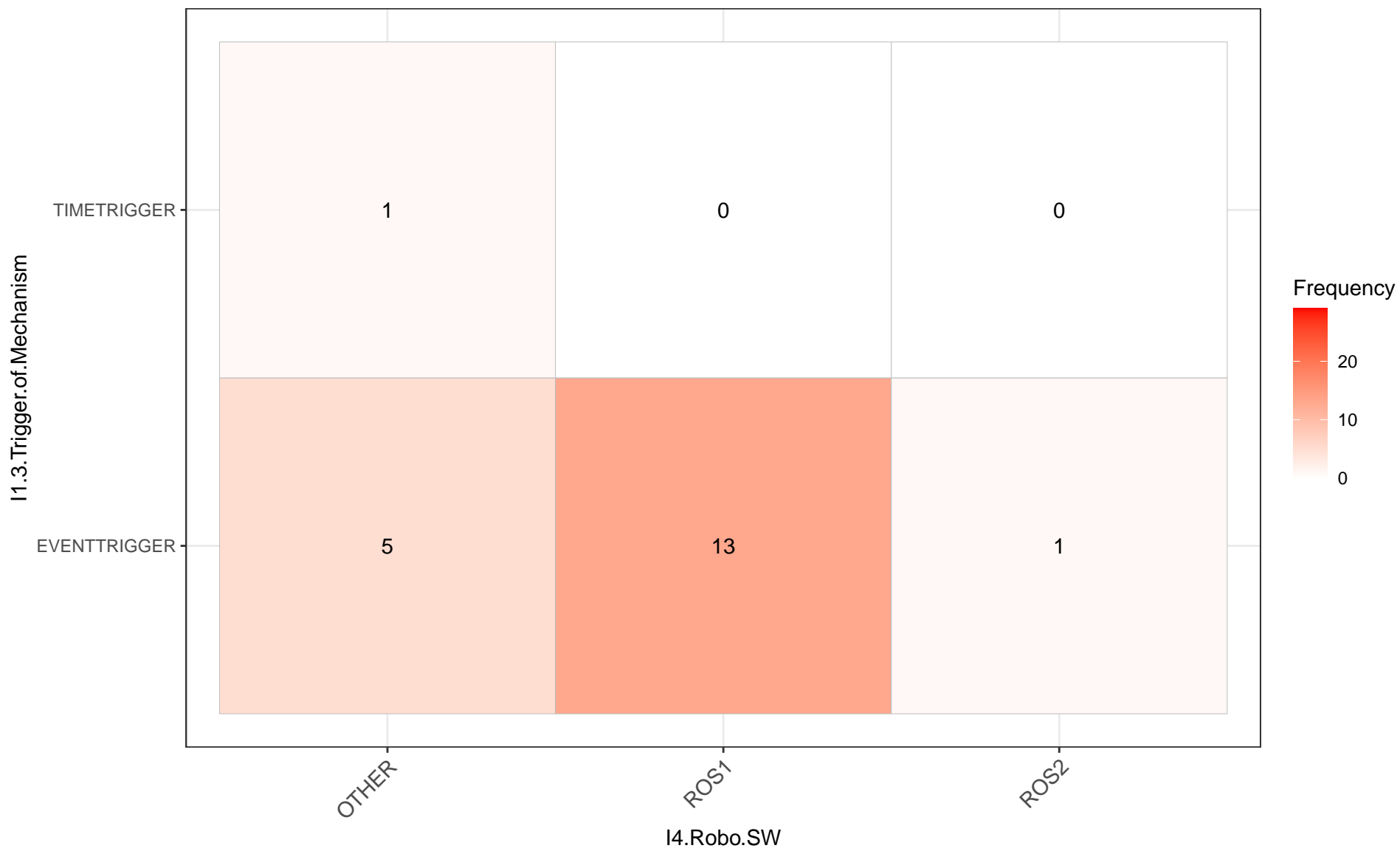
I2.Adap..Purpose

I1.3.Trigger.of.Mechanism

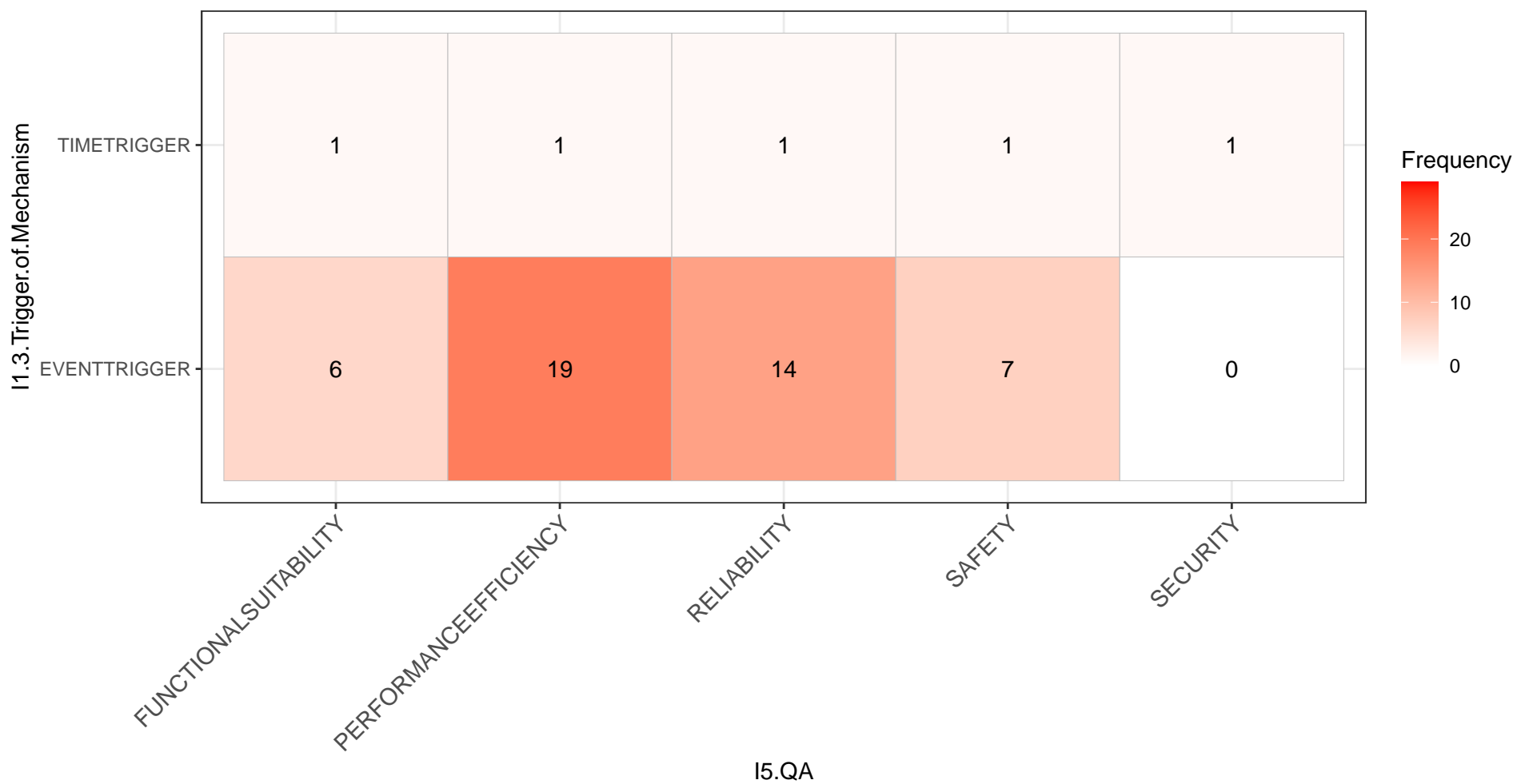
I1.3.Trigger.of.Mechanism_____I3.Robot.Type



I1.3.Trigger.of.Mechanism_____I4.Robo.SW



I1.3.Trigger.of.Mechanism_____I5.QA



I1.3.Trigger.of.Mechanism_____I6.Independence

I1.3.Trigger.of.Mechanism

TIMETRIGGER

1

1

0

EVENTTRIGGER

8

1

16

DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence

Frequency

20

10

0

I1.3.Trigger.of.Mechanism_____I7.Deployment.Realness

I1.3.Trigger.of.Mechanism

TIMETRIGGER

EVENTTRIGGER

REAL

SIMULATED

I7.Deployment.Realness

Frequency



20

10

0

1

1

12

9

I1.3.Trigger.of.Mechanism_____I7.Mission.Realness

I1.3.Trigger.of.Mechanism

TIMETRIGGER

EVENTTRIGGER

REAL

SYNTHETIC

I7.Mission.Realness

Frequency



20

10

0

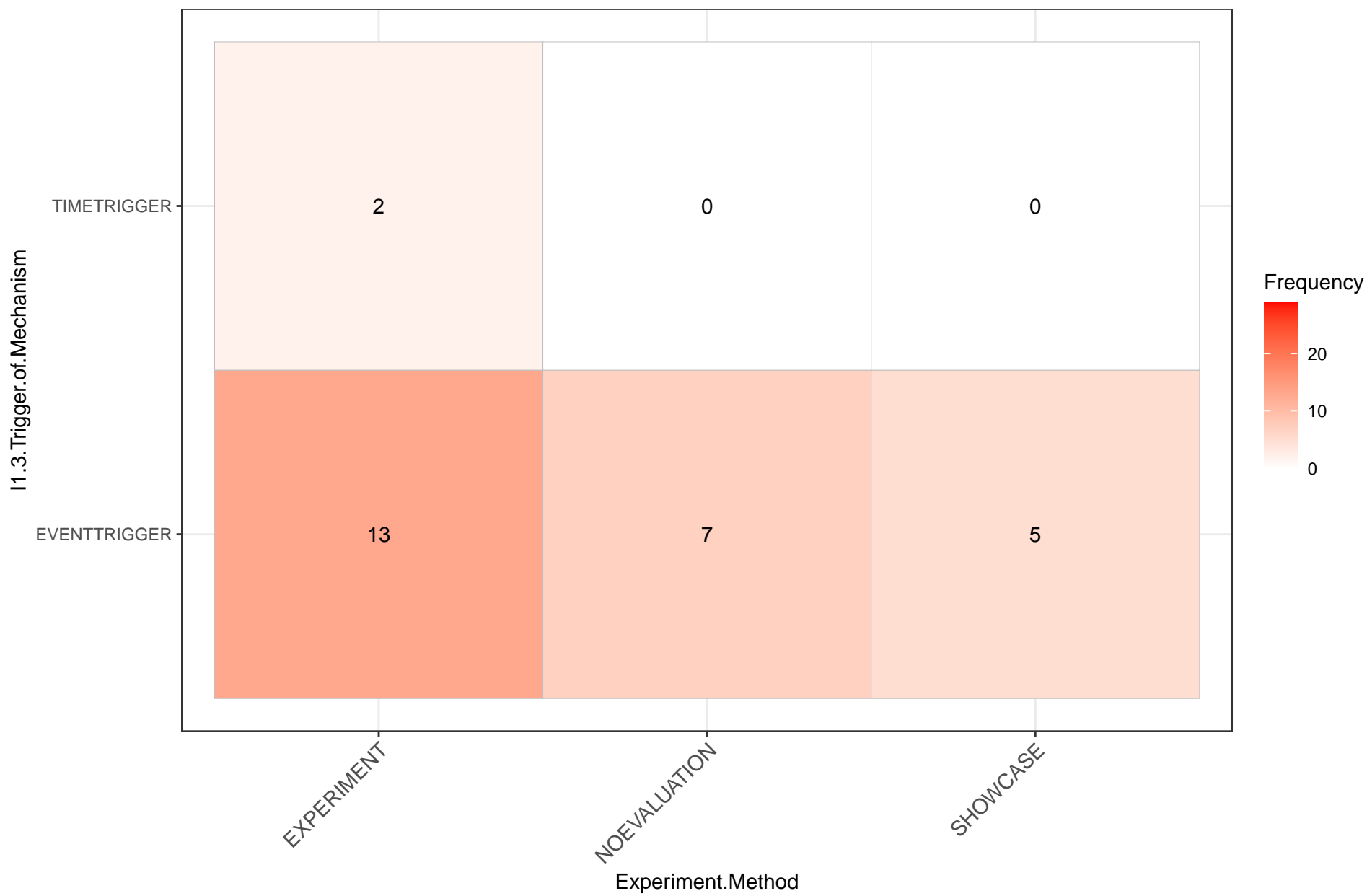
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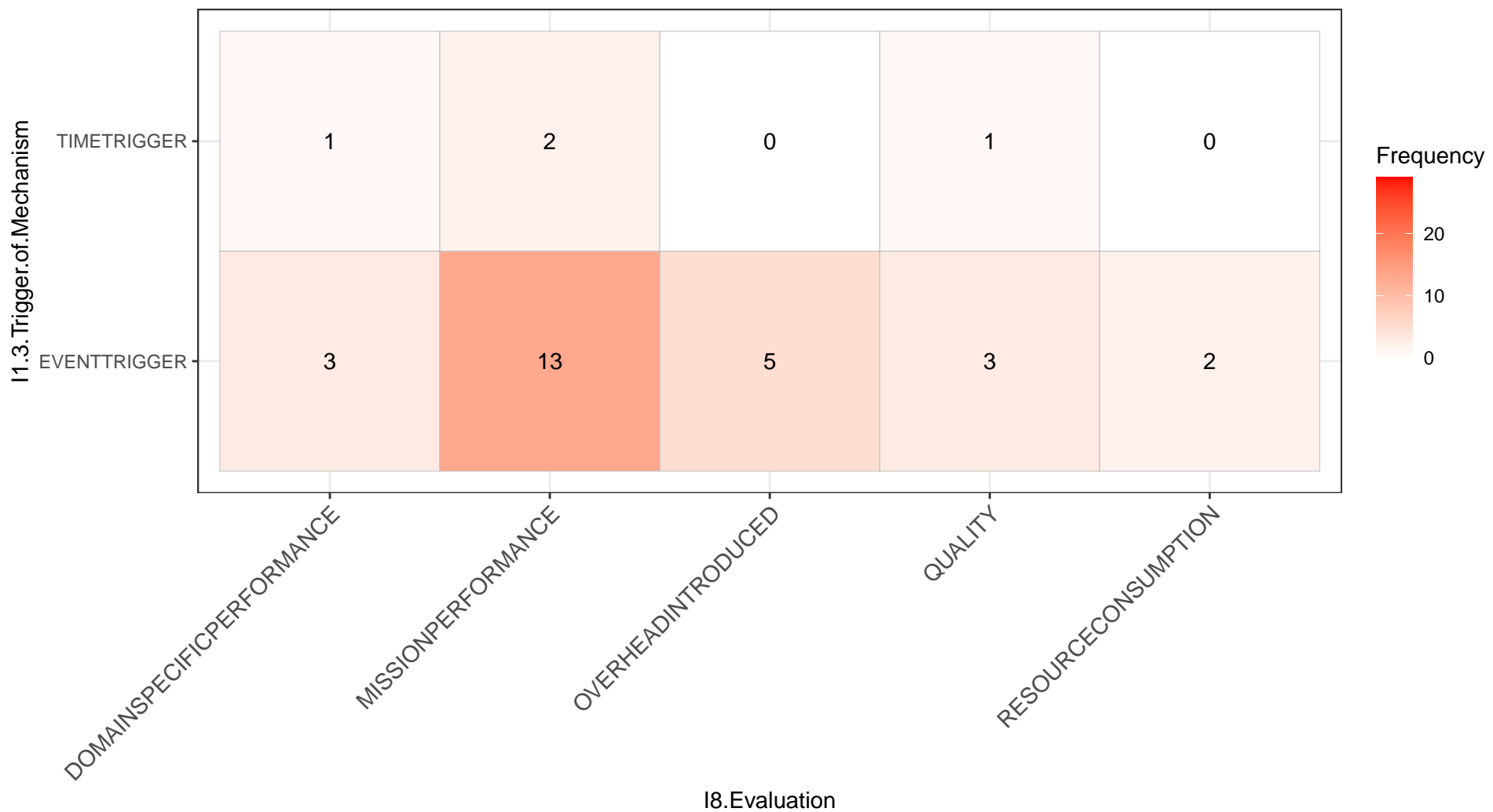
13

12

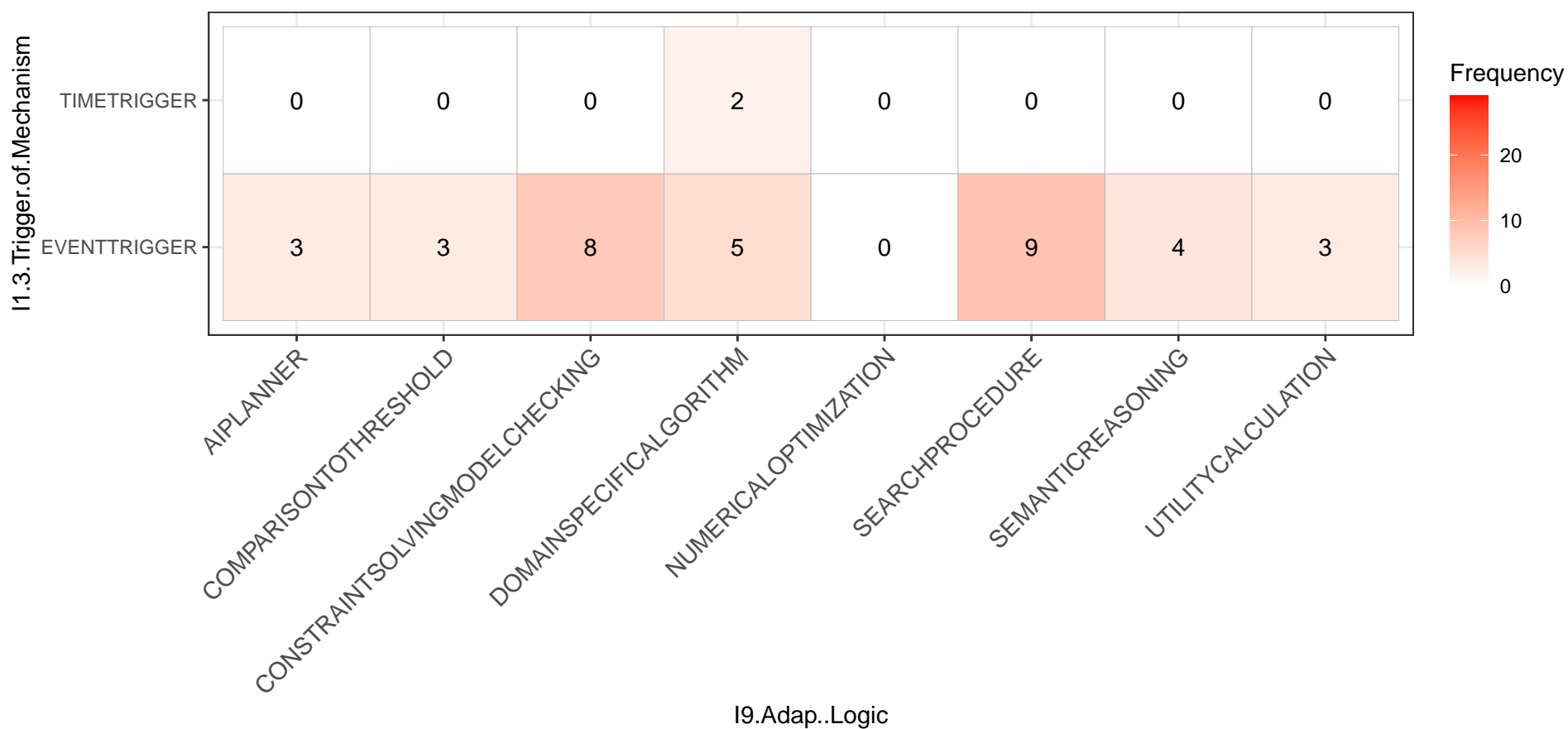
I1.3.Trigger.of.Mechanism____Experiment.Method



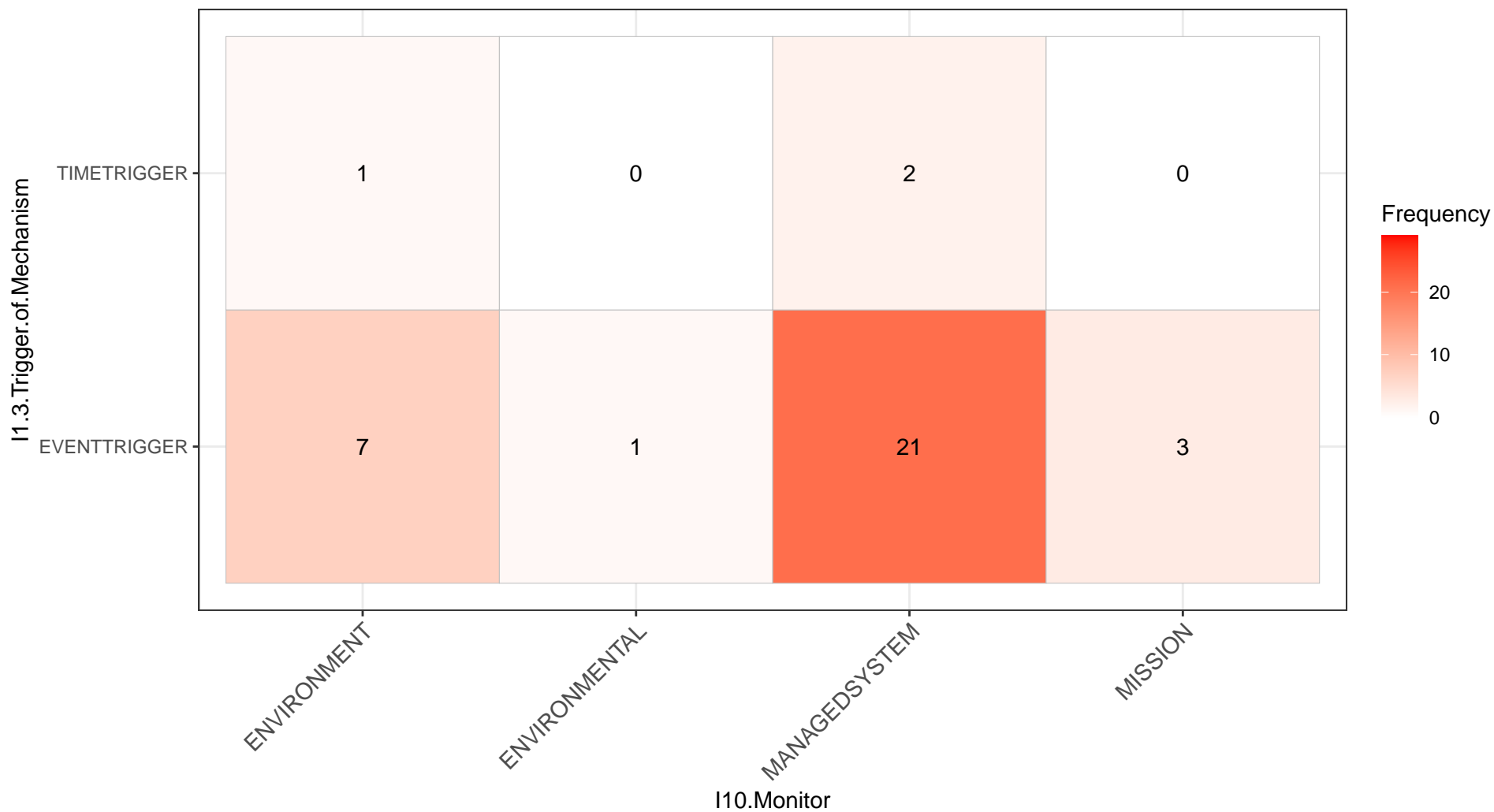
I1.3.Trigger.of.Mechanism_____I8.Evaluation

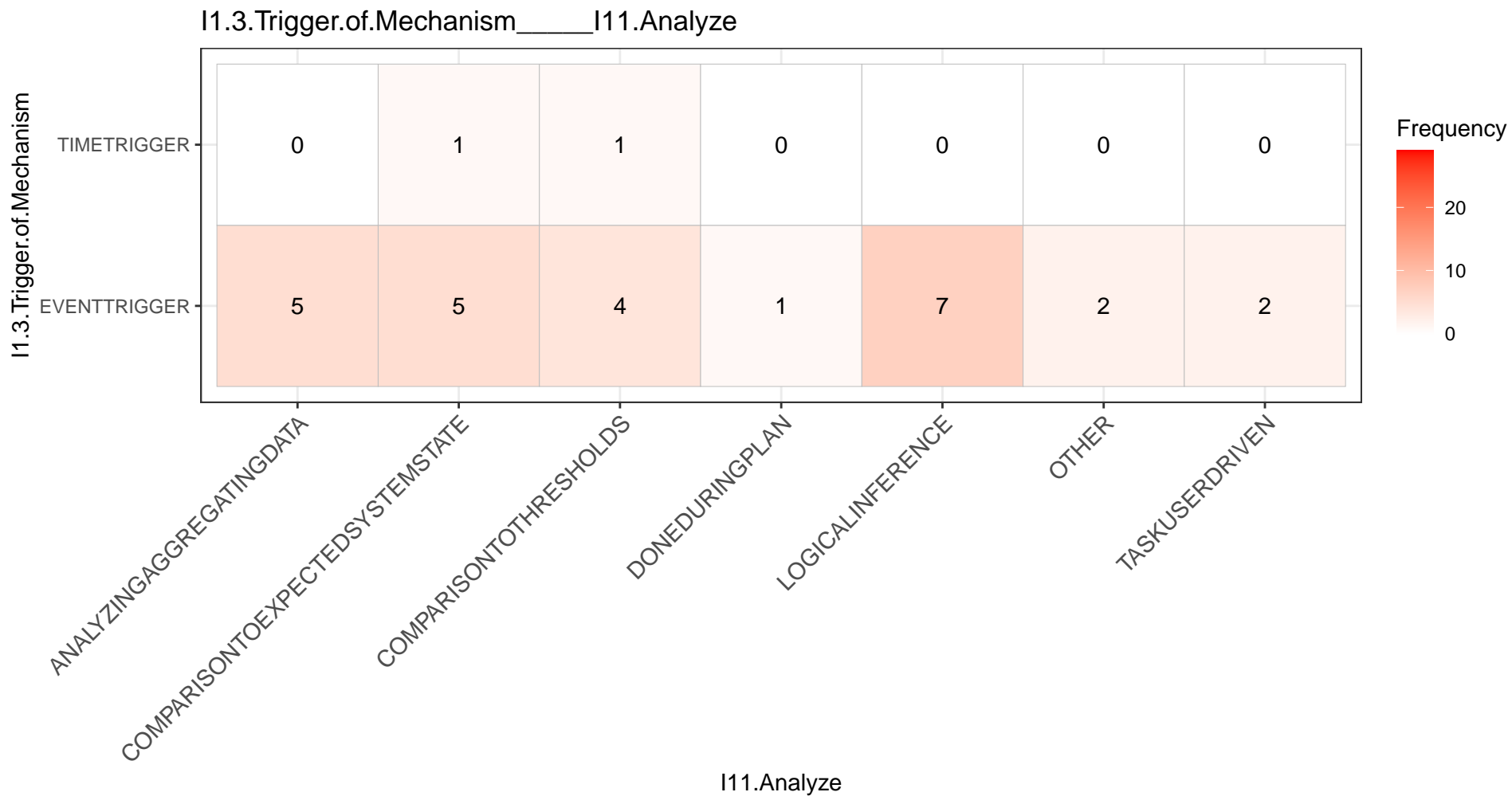


I1.3.Trigger.of.Mechanism_____I9.Adap..Logic



I1.3.Trigger.of.Mechanism____I10.Monitor





I1.3.Trigger.of.Mechanism_____I12.Plan

I1.3.Trigger.of.Mechanism

TIMETRIGGER

0

2

0

EVENTTRIGGER

12

10

2

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPANNINGLANGUAGES

I12.Plan

Frequency

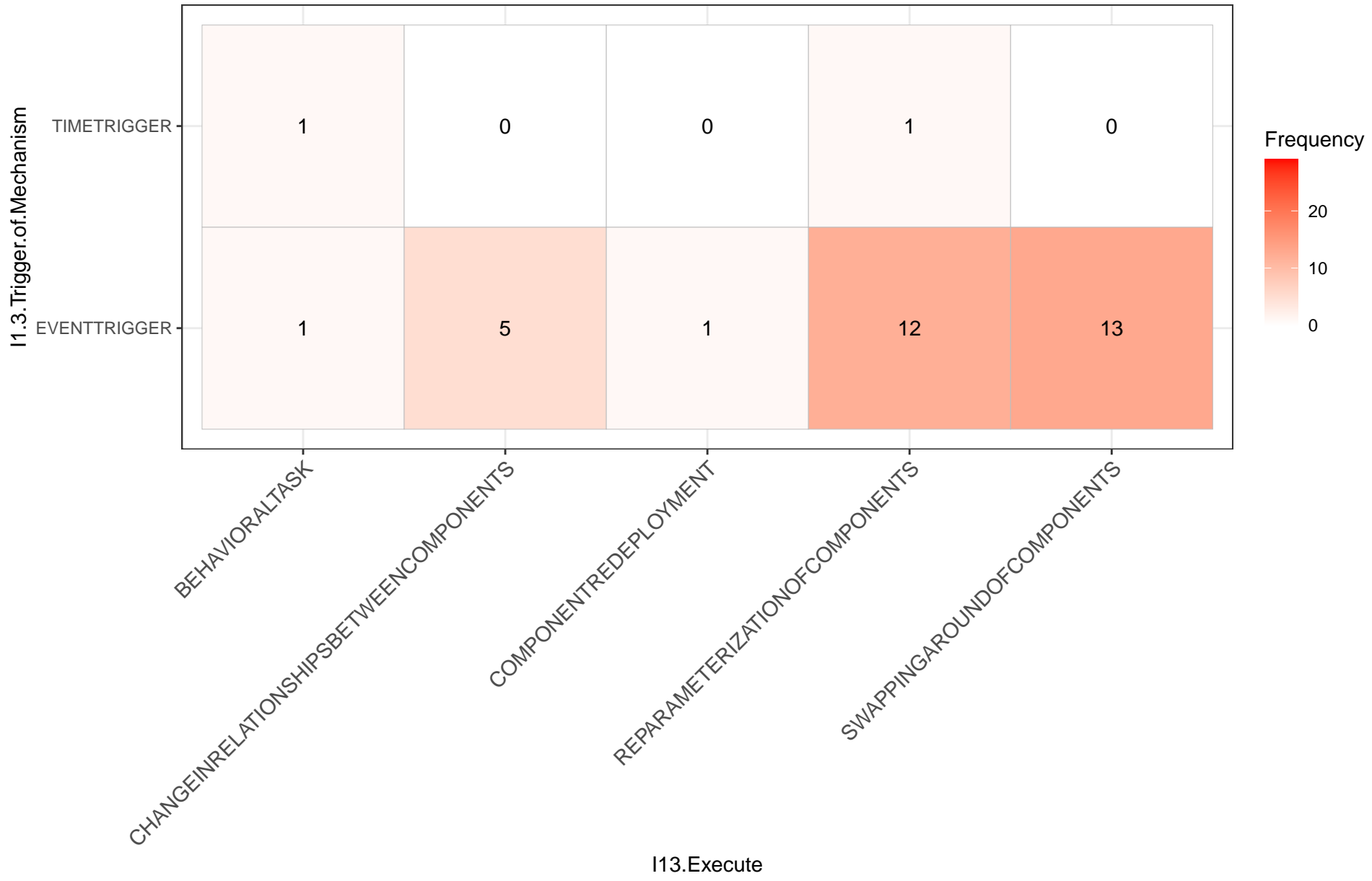


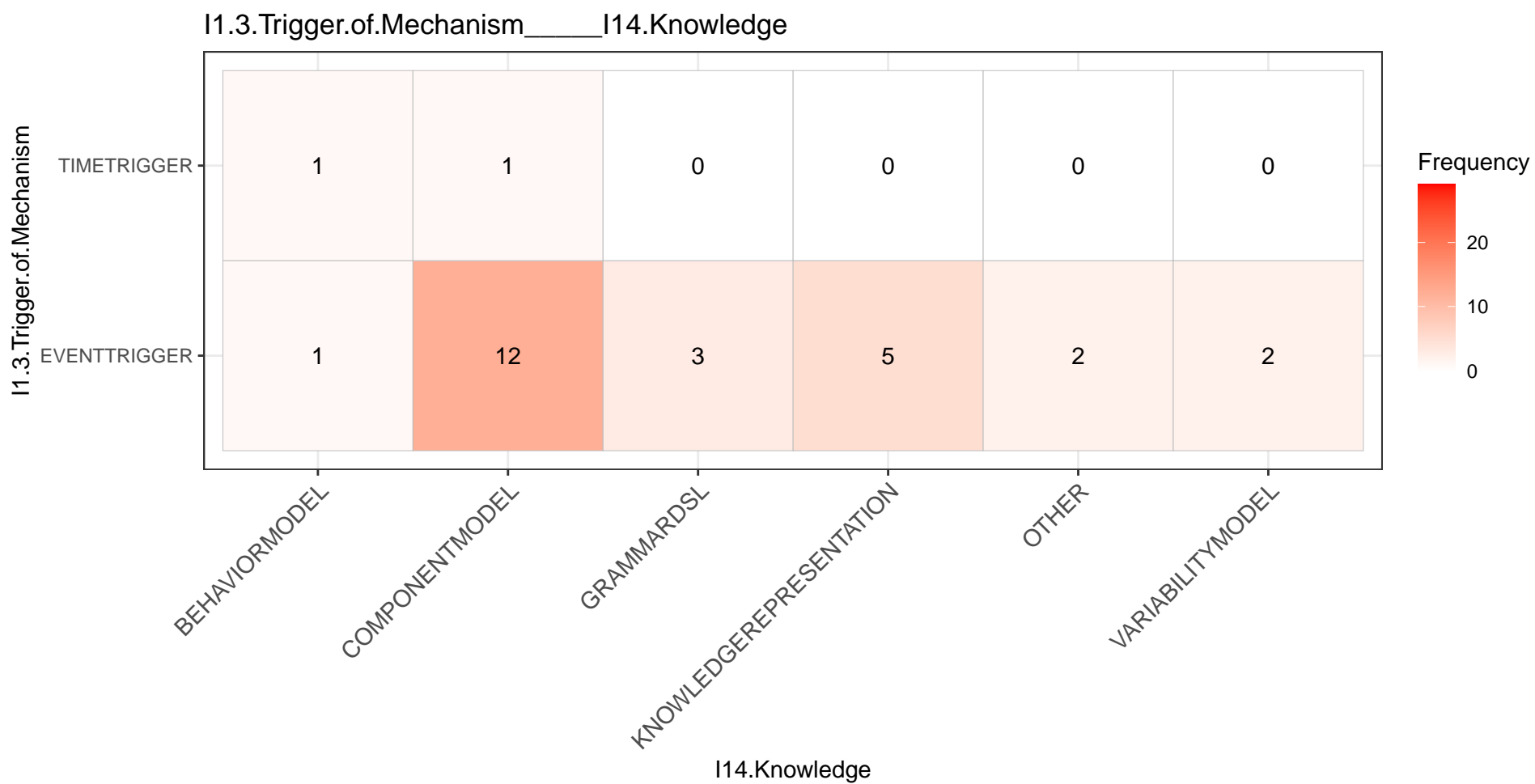
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10

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I1.3.Trigger.of.Mechanism____I13.Execute





I1.4.Criticality.of.Effects_____I1.4.Predictability.of.Effects

I1.4.Criticality.of.Effects

SAFETYCRITICAL

2

4

MISSIONCRITICAL

7

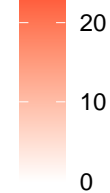
14

DO
DETERMINISTIC

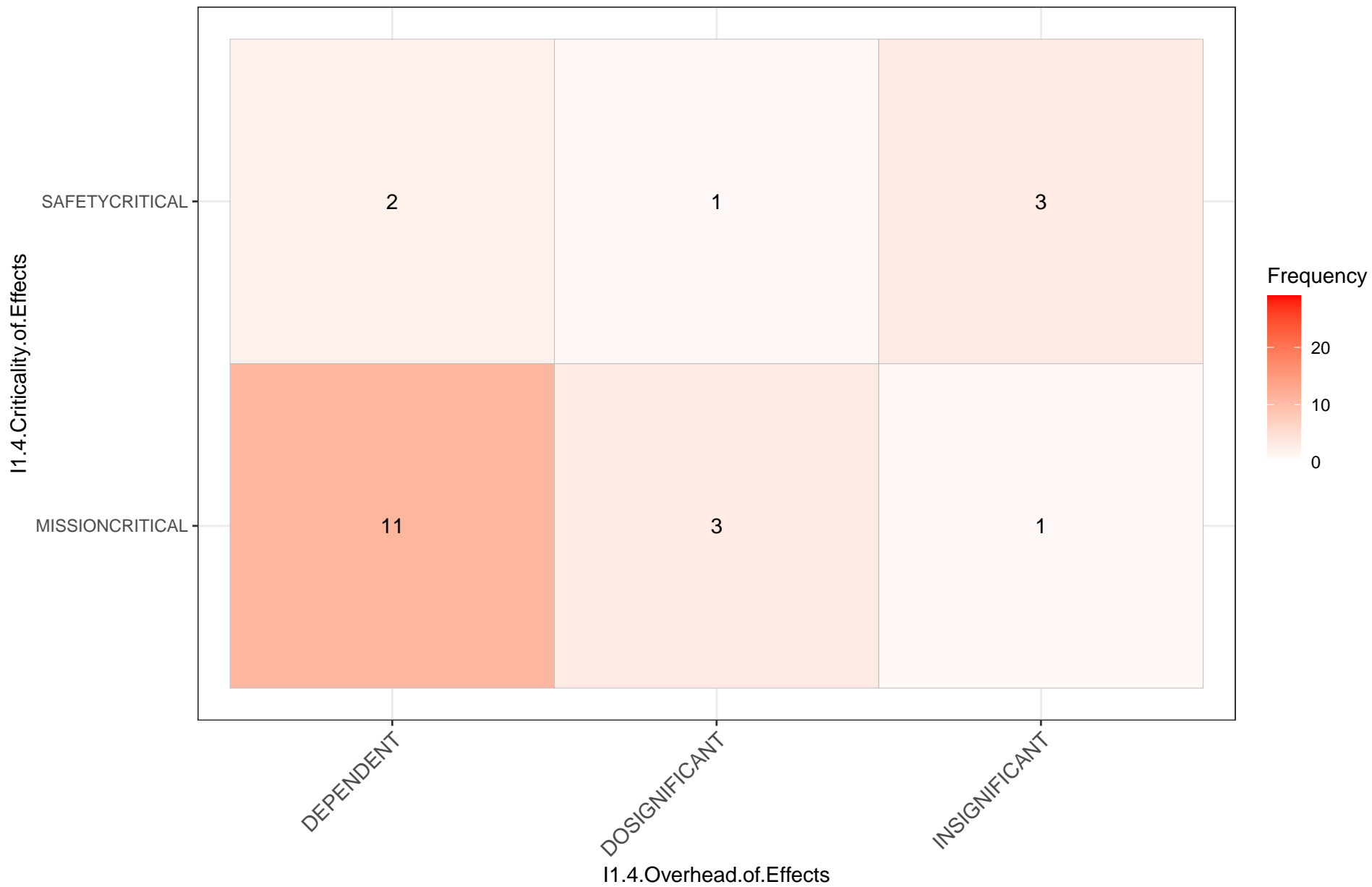
NO
NDETERMINISTIC

I1.4.Predictability.of.Effects

Frequency



I1.4.Criticality.of.Effects_____I1.4.Overhead.of.Effects



I1.4.Criticality.of.Effects_____I1.4.Resilience.of.Effects

I1.4.Criticality.of.Effects

SAFETYCRITICAL

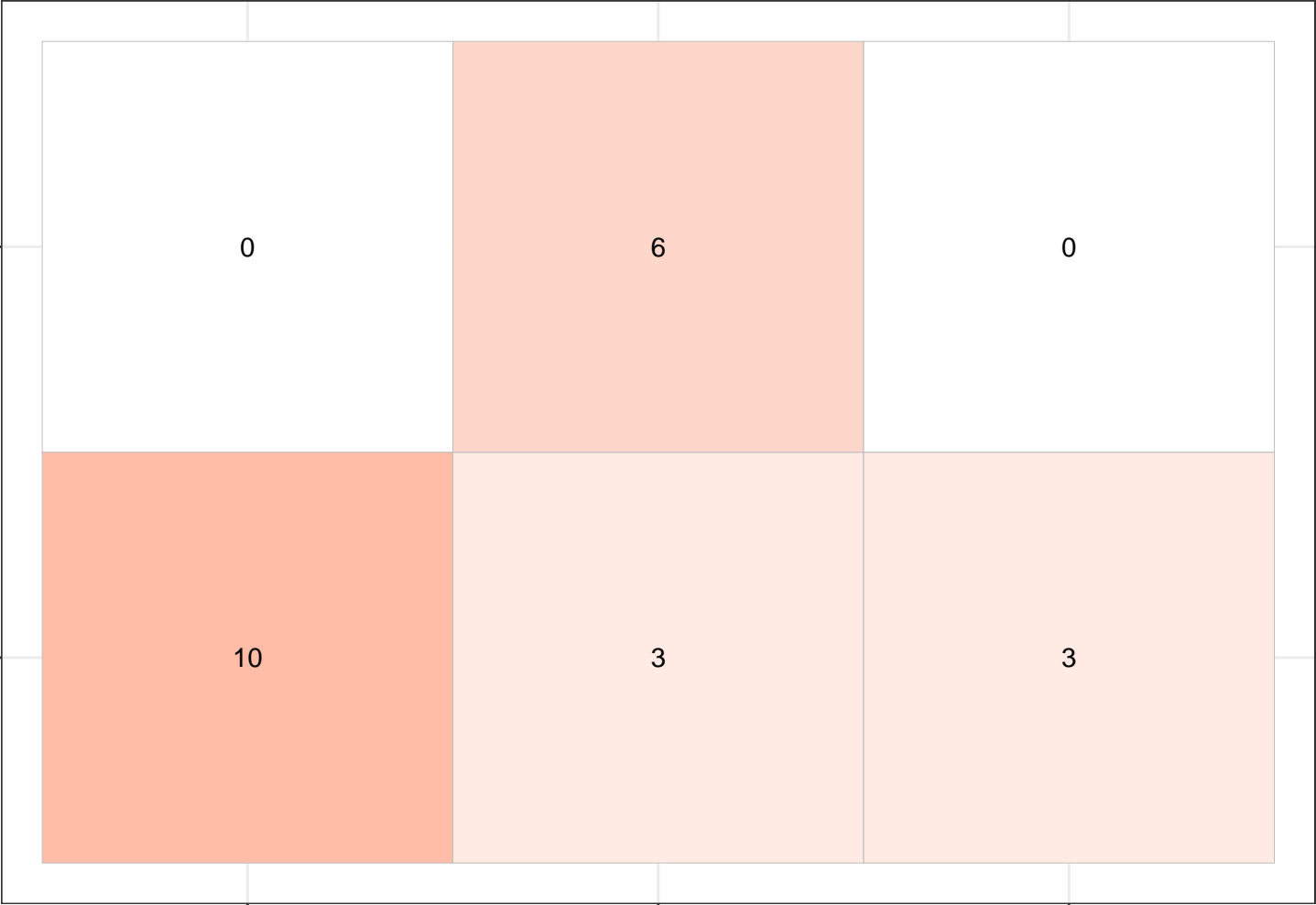
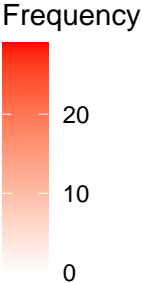
MISSIONCRITICAL

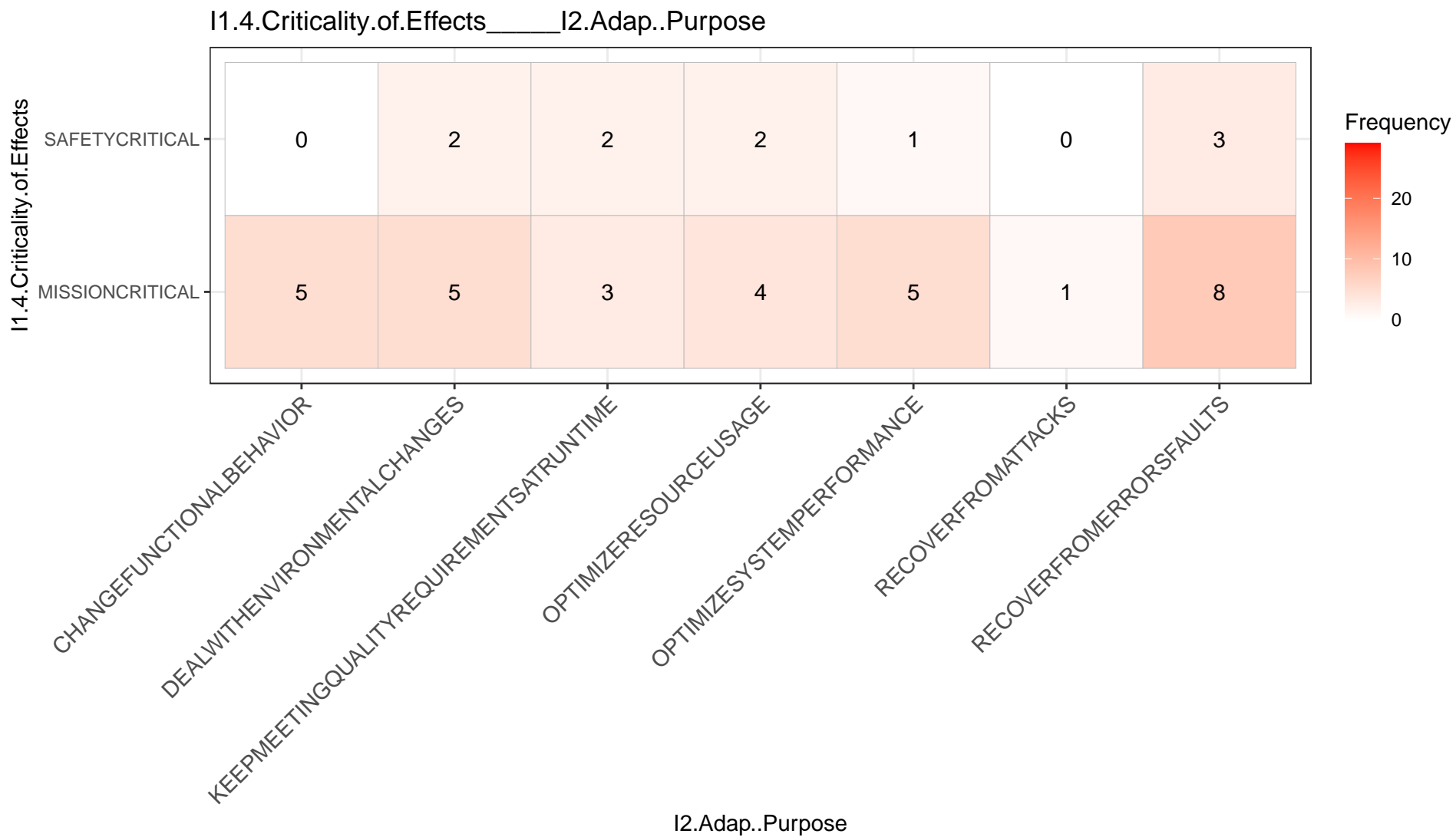
DEPENDENT

DORESILIENT

IRRESILIENT

I1.4.Resilience.of.Effects



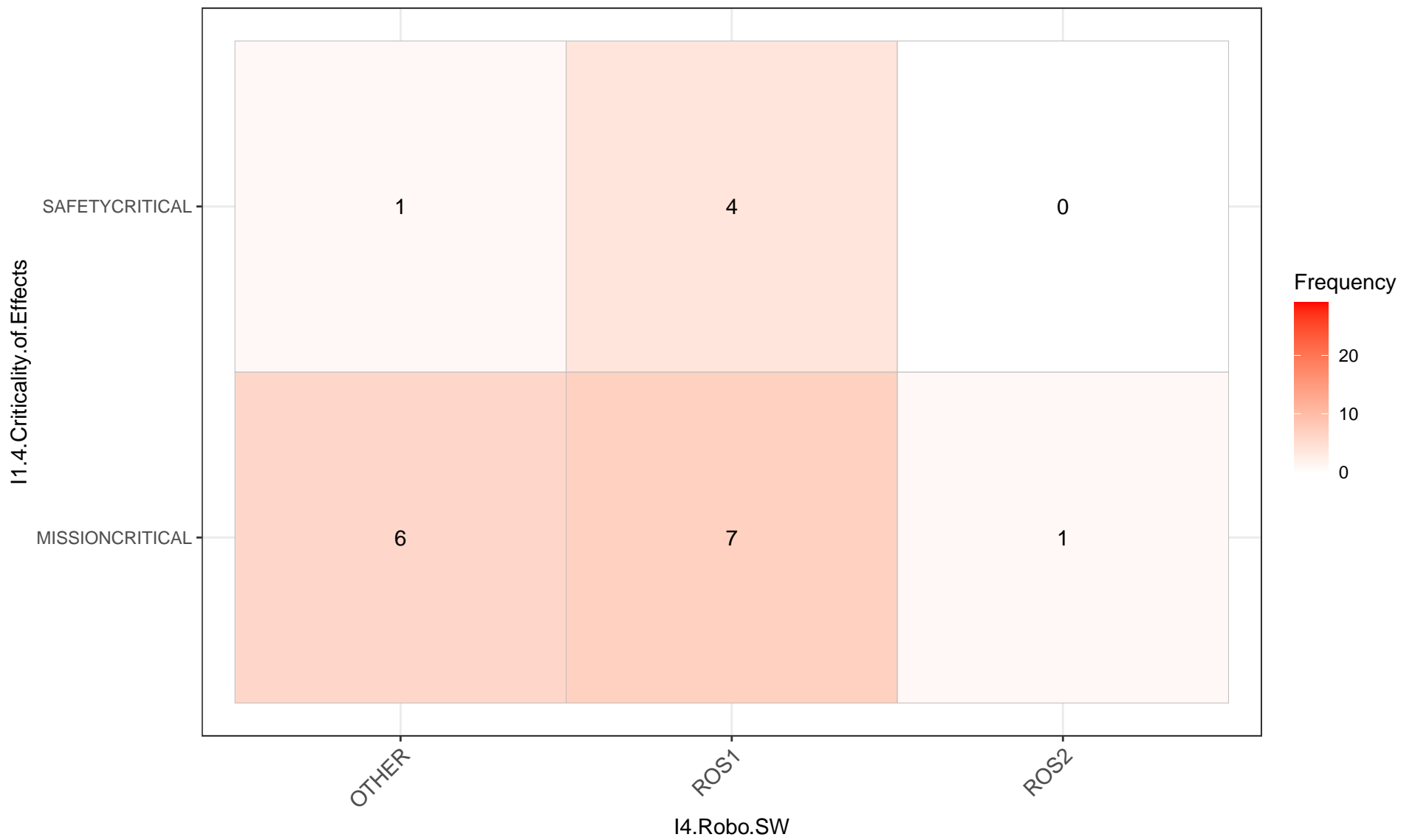


I1.4.Criticality.of.Effects_____I3.Robot.Type

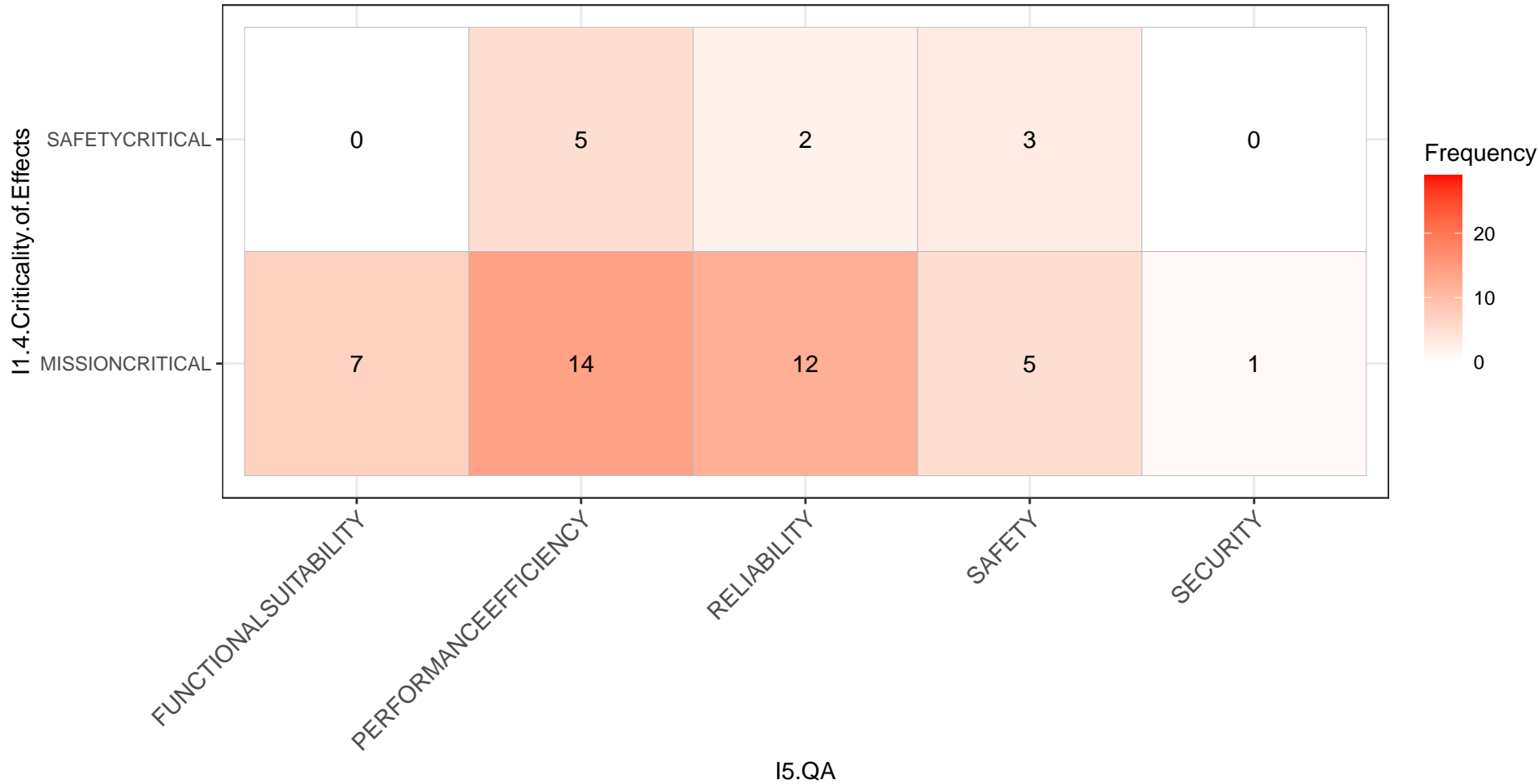
Frequency

I3.Robot.Type

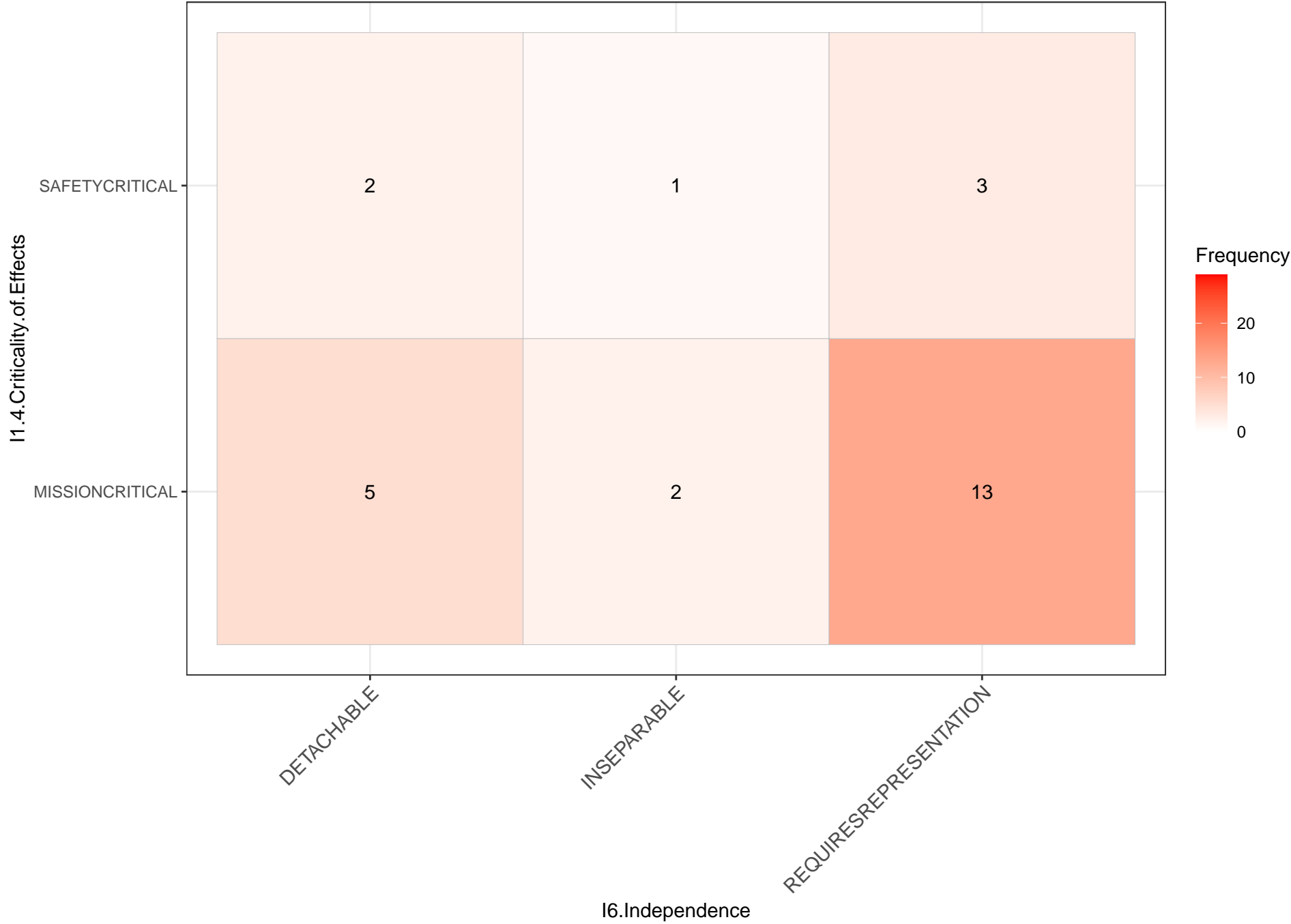
I1.4.Criticality.of.Effects____I4.Robo.SW



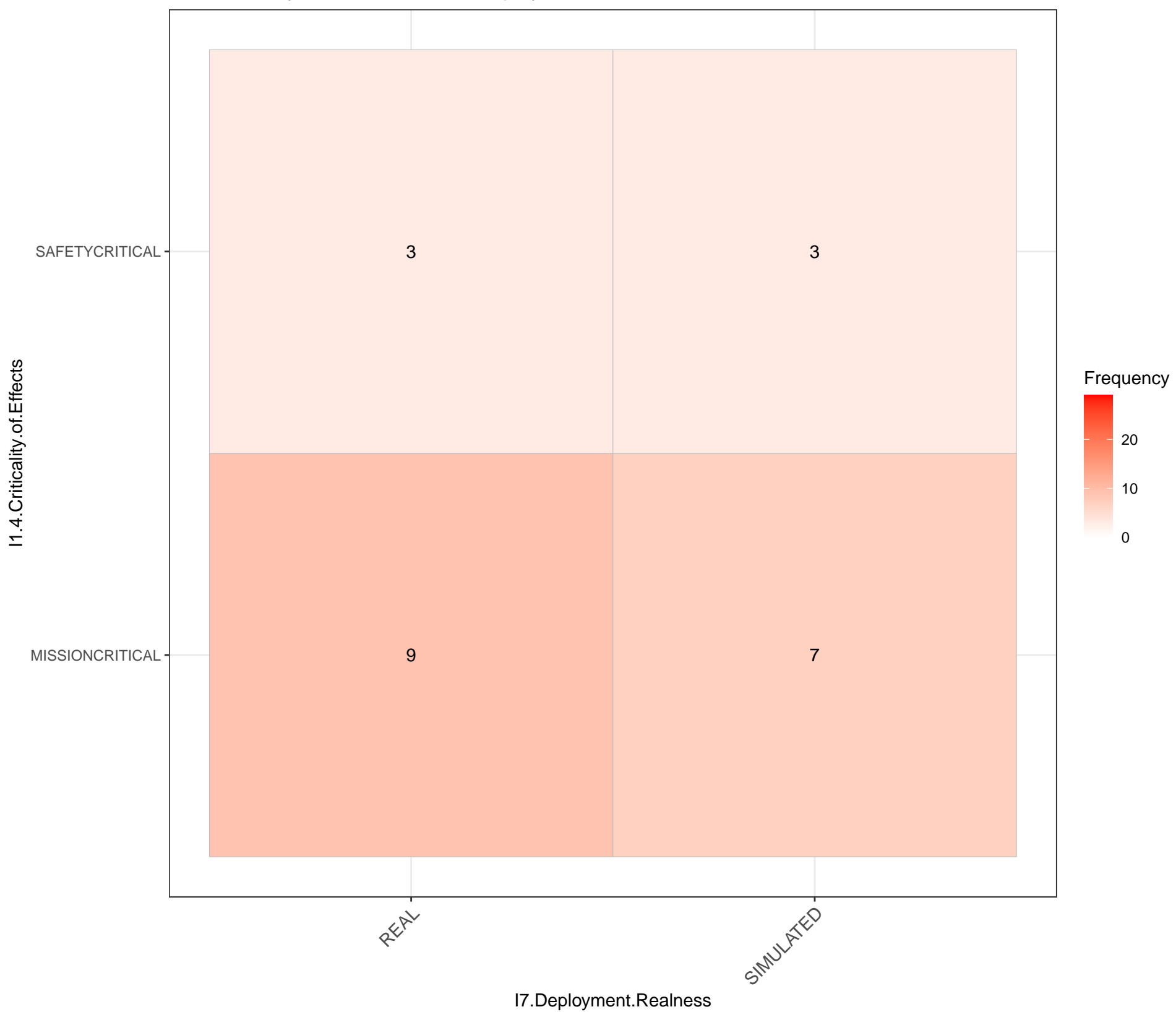
I1.4.Criticality.of.Effects_____I5.QA



I1.4.Criticality.of.Effects_____I6.Independence



I1.4.Criticality.of.Effects_____I7.Deployment.Realness



I1.4.Criticality.of.Effects_____I7.Mission.Realness

I1.4.Criticality.of.Effects

SAFETYCRITICAL

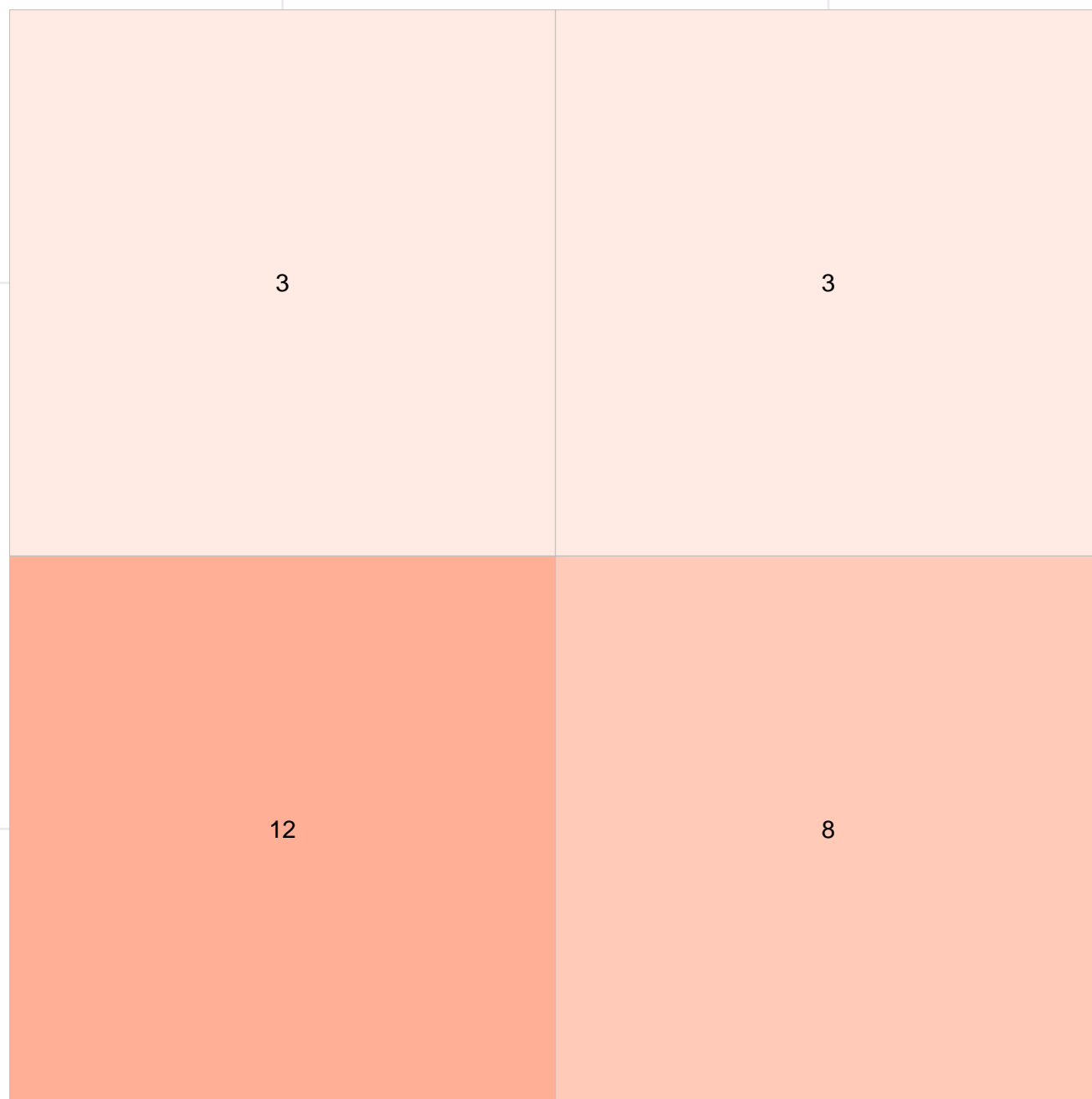
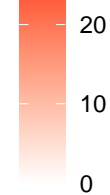
MISSIONCRITICAL

REAL

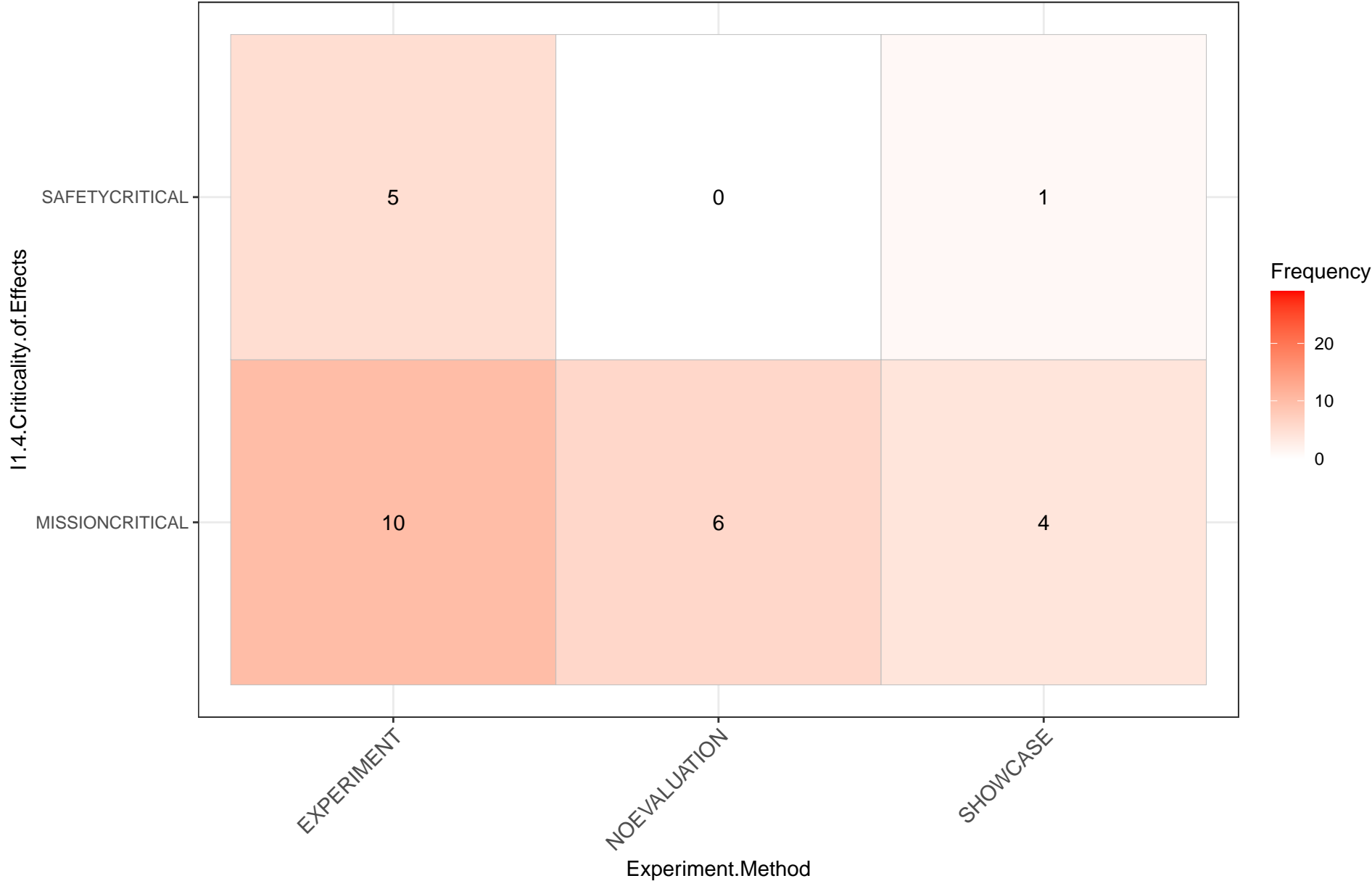
SYNTHETIC

I7.Mission.Realness

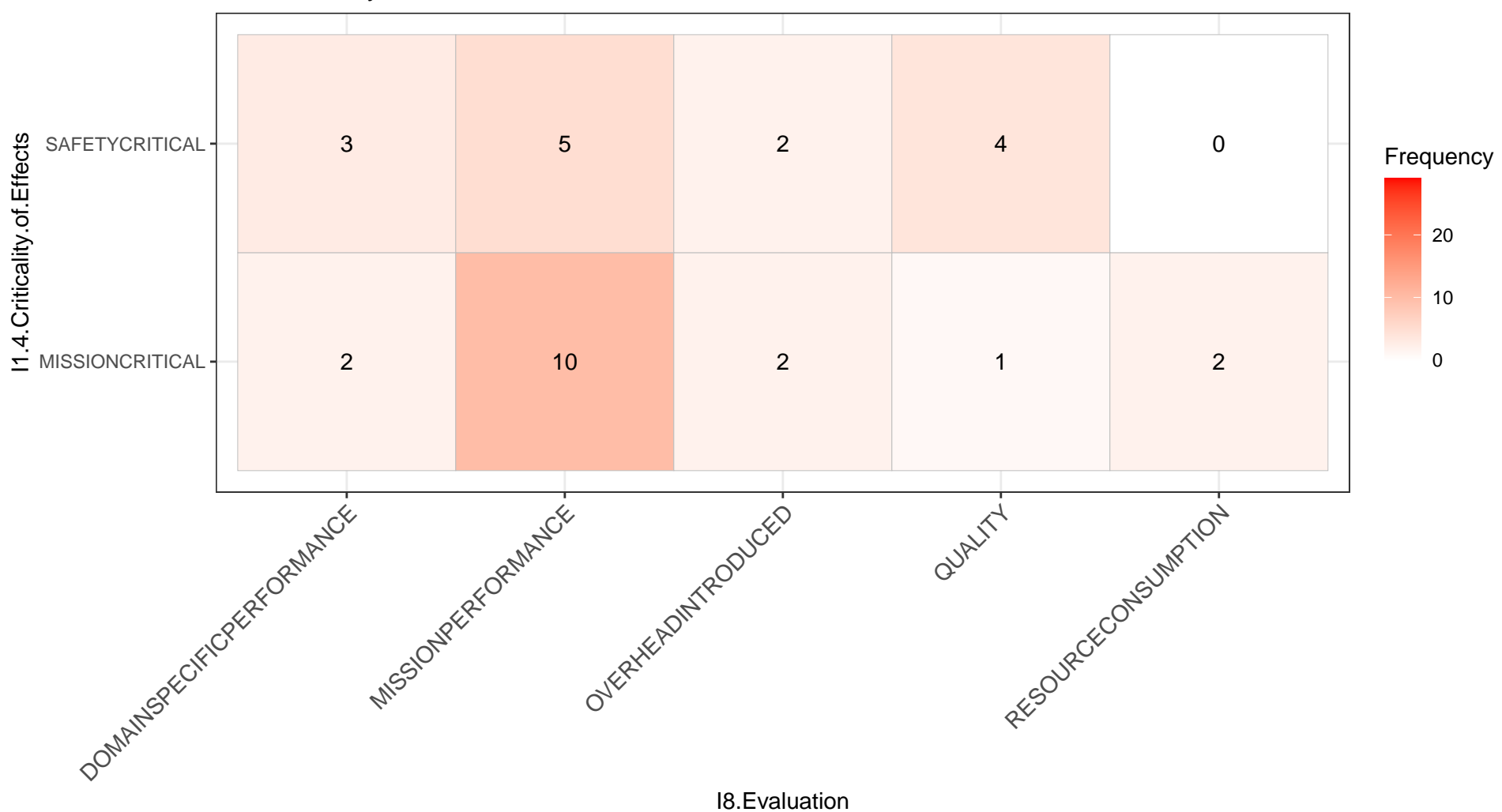
Frequency

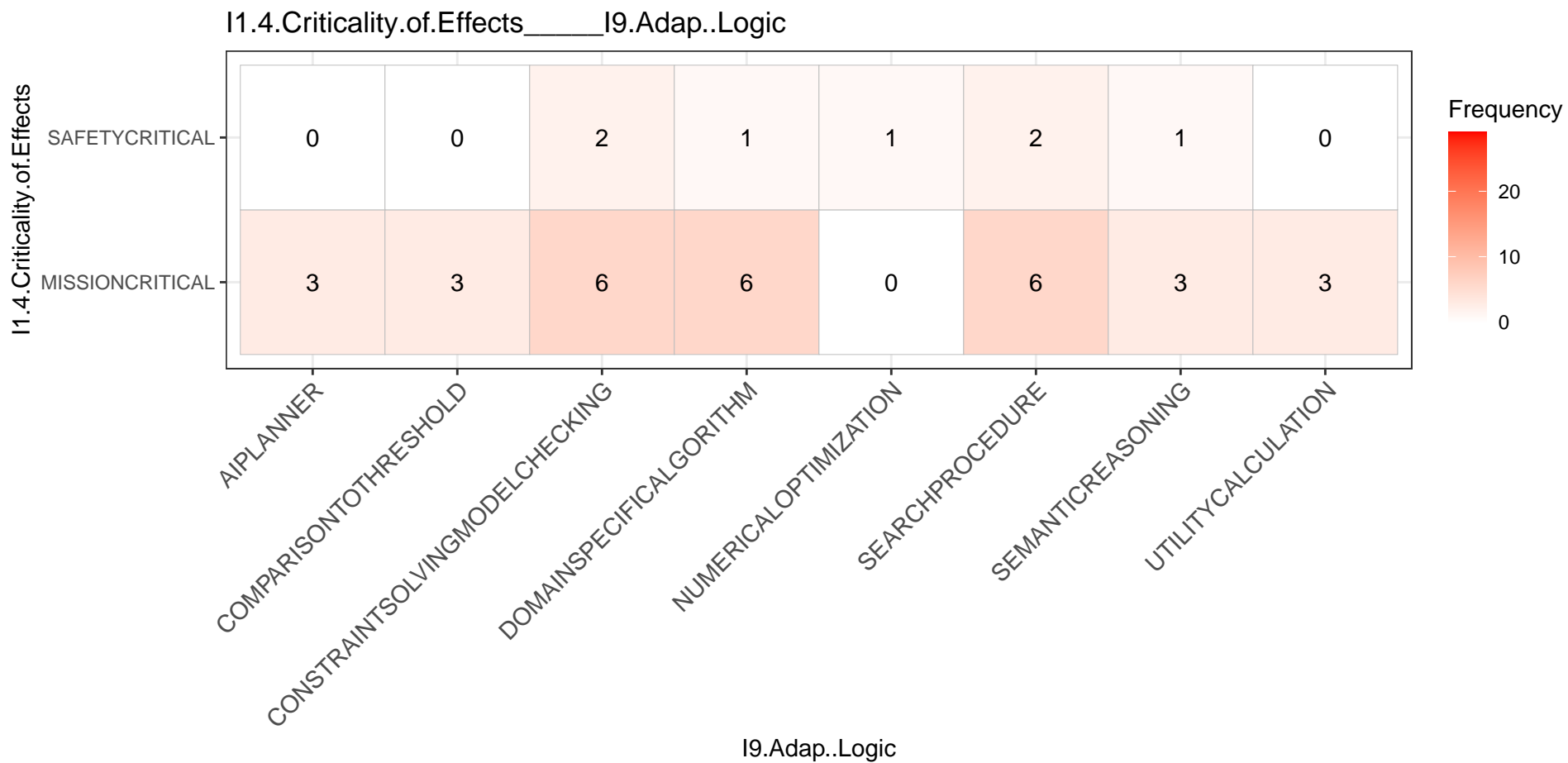


I1.4.Criticality.of.Effects_____Experiment.Method

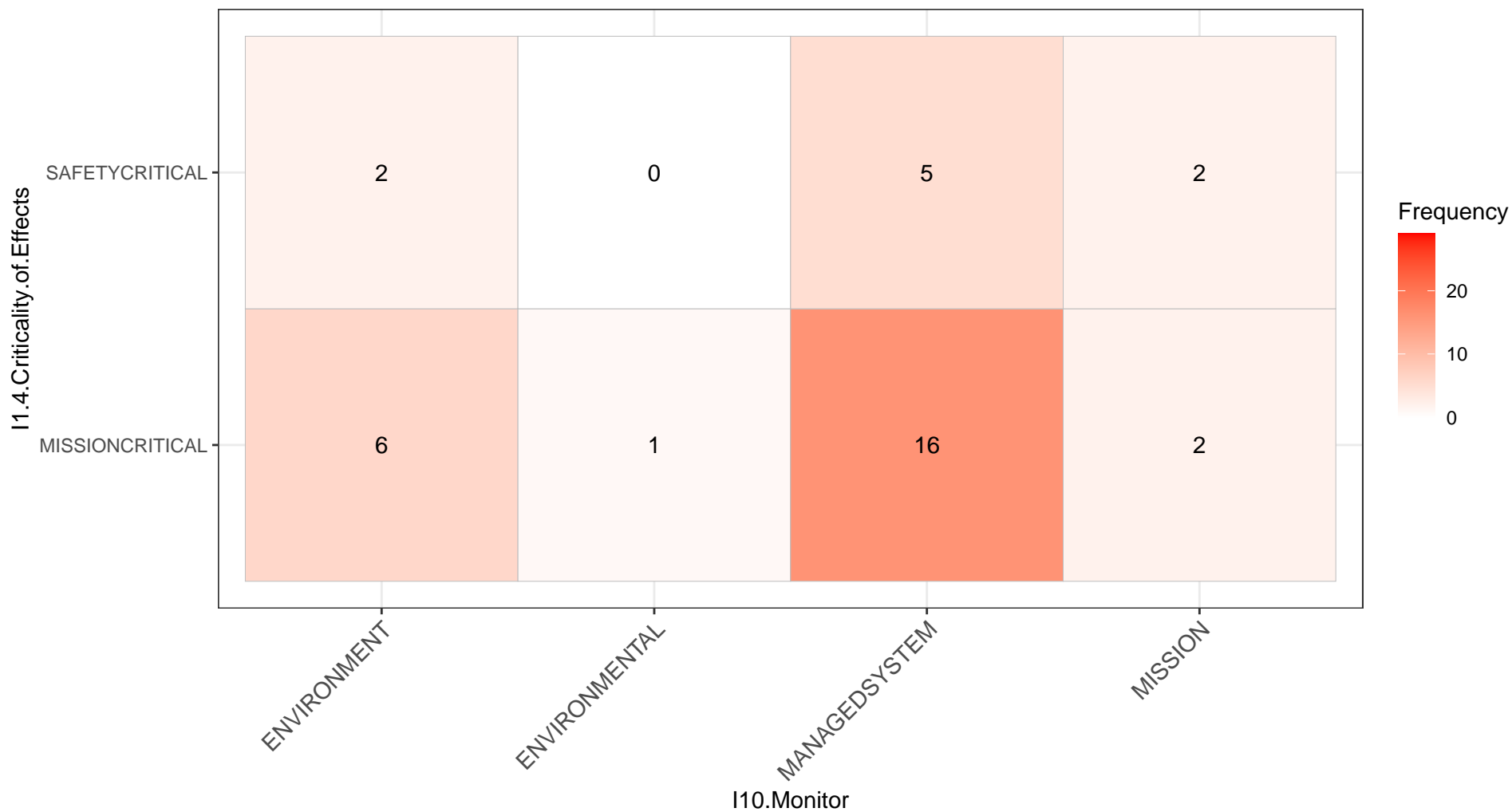


I1.4.Criticality.of.Effects_____I8.Evaluation





I1.4.Criticality.of.Effects_____I10.Monitor





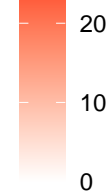
I1.4.Criticality.of.Effects_____I12.Plan

I1.4.Criticality.of.Effects

SAFETYCRITICAL

MISSIONCRITICAL

Frequency



5

1

0

7

11

2

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPLANNINGLANGUAGES

I12.Plan

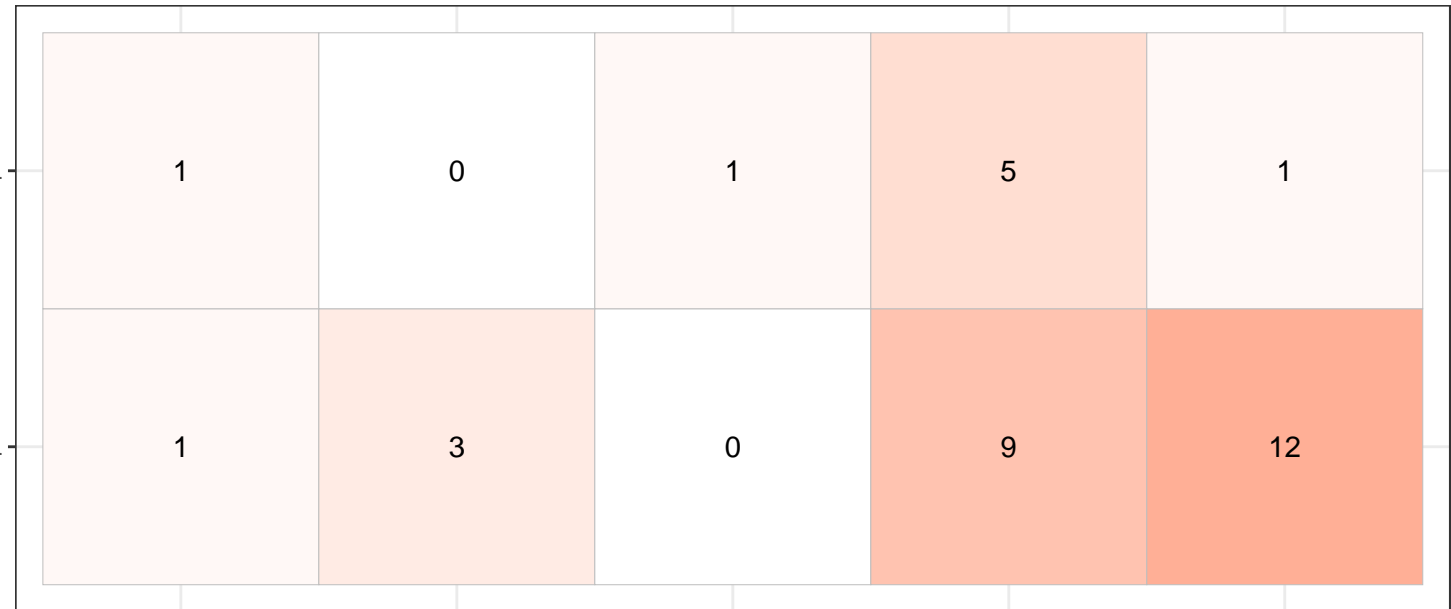
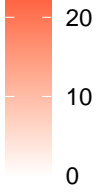
I1.4.Criticality.of.Effects_____I13.Execute

I1.4.Criticality.of.Effects

SAFETYCRITICAL

MISSIONCRITICAL

Frequency



BEHAVIORALTASK

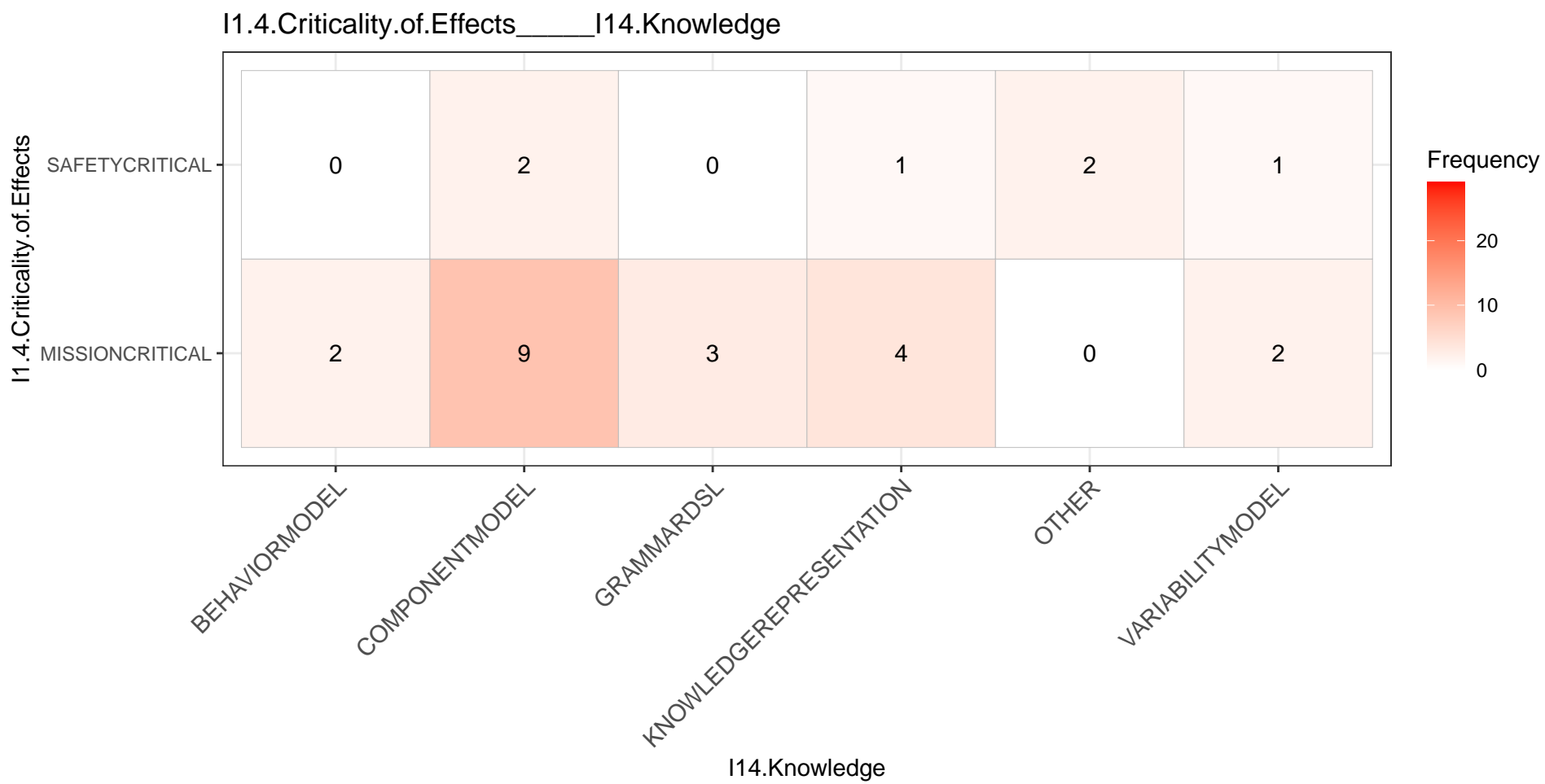
CHANGEINRELATIONSHIPS BETWEENCOMPONENTS

COMPONENTREDEPLOYMENT

REPARAMETERIZATIONOFCOMPONENTS

SWAPPINGAROUNDOFCOMPONENTS

I13.Execute



I1.4.Predictability.of.Effects_____I1.4.Overhead.of.Effects

I1.4.Predictability.of.Effects

NONDETERMINISTIC

9

4

2

DODETERMINISTIC

6

0

2

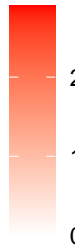
DEPENDENT

DOSIGNIFICANT

INSIGNIFICANT

I1.4.Overhead.of.Effects

Frequency

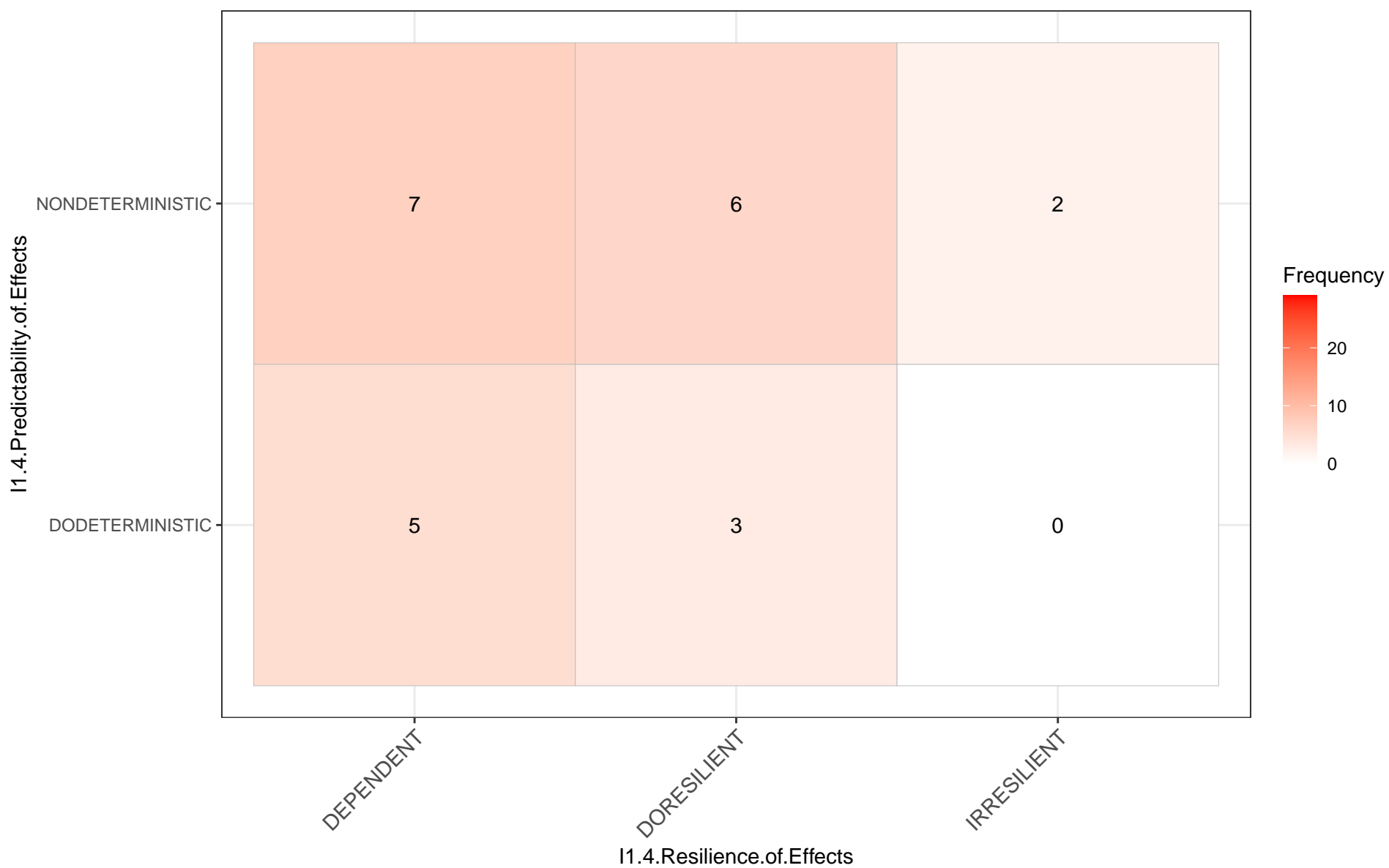


20

10

0

I1.4.Predictability.of.Effects_____I1.4.Resilience.of.Effects



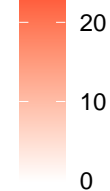
I1.4.Predictability.of.Effects

I1.4.Predictability.of.Effects_____I2.Adap..Purpose

NONDETERMINISTIC

DODETERMINISTIC

Frequency



CHANGEFUNCTIONALBEHAVIOR

DEALWITHENVIRONMENTALCHANGES

KEEPMEETINGQUALITYREQUIREMENTSATRUNTIME

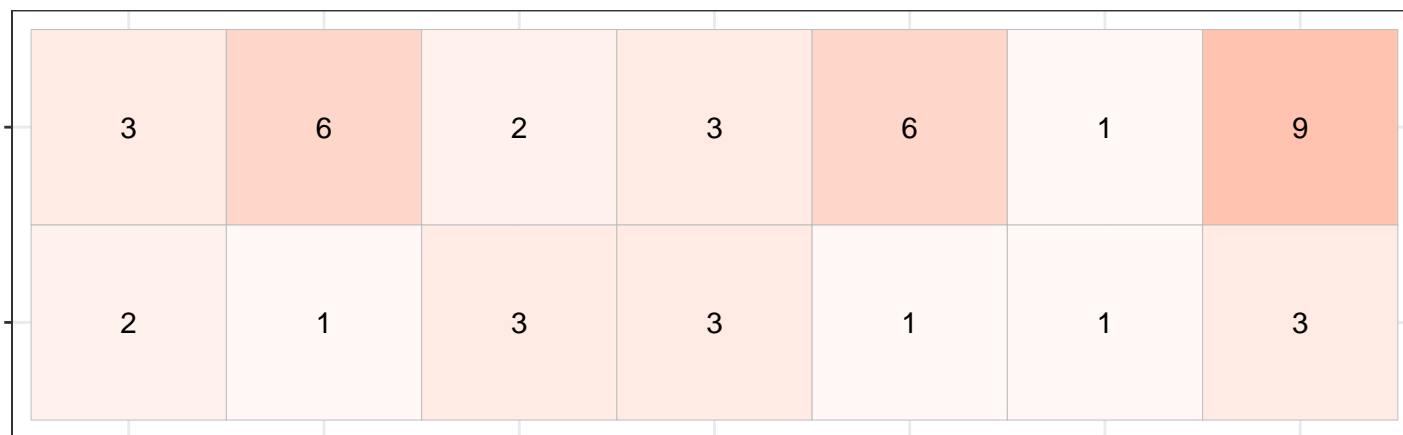
OPTIMIZERESOURCEUSAGE

OPTIMIZESEMPERFORMANCE

RECOVERFROMATTACKS

RECOVERFROMERRORSFAULTS

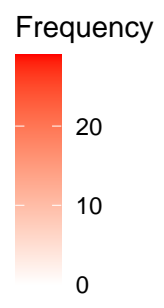
I2.Adap..Purpose



I1.4.Predictability.of.Effects

I1.4.Predictability.of.Effects_____I3.Robot.Type

NONDETERMINISTIC	1	0	1	1	0	2	0	1	1	2	1	0	0	1	0	0	1	1	1	1	1	0	3	1	1	1
DODETERMINISTIC	0	0	0	1	1	0	1	1	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2	0	0	0



BOXERCLEARPATH
CRAWLERTERMINATORBOT
FIELDMOBILEROBOT
HETEROGENOUSROBOTS
INFOTAINMENTROBOT
KUKALIGHTWEIGHTROBOT4LWR4
HEXMANIPULATOR
HEXMANIPULATOR
IROBOTCREATE2
MOBILEMANIPULATOR
MOBILEROBOTS
MOBOTTERRESTRIAL
MOBILEROBOTTIAGO
MOBILESERVICEROBOT
MSUEVORALLYMOBILETERRESTRIAL
MULTIPLEHEXROTOR
NAOROBOT
PIONEER3DX
QUADROCOPTER
RESCUE
SINGLESERVOINGROTATIONROBOT
TEDUSARTERRESTRIALSEARCH
TRIGLIDEINDUSTRIALASSEMBLY
TURTLEBOT
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLE
QUADROCOPTORFOREVALUATION
WAREHOUSEDELIVERYROBOT
WHICHISANINDUSTRIALAGV

I3.Robot.Type

I1.4.Predictability.of.Effects_____I4.Robo.SW

I1.4.Predictability.of.Effects

NONDETERMINISTIC

5

10

0

DODETERMINISTIC

2

2

1

OTHER

ROS1

ROS2

I4.Robo.SW

Frequency



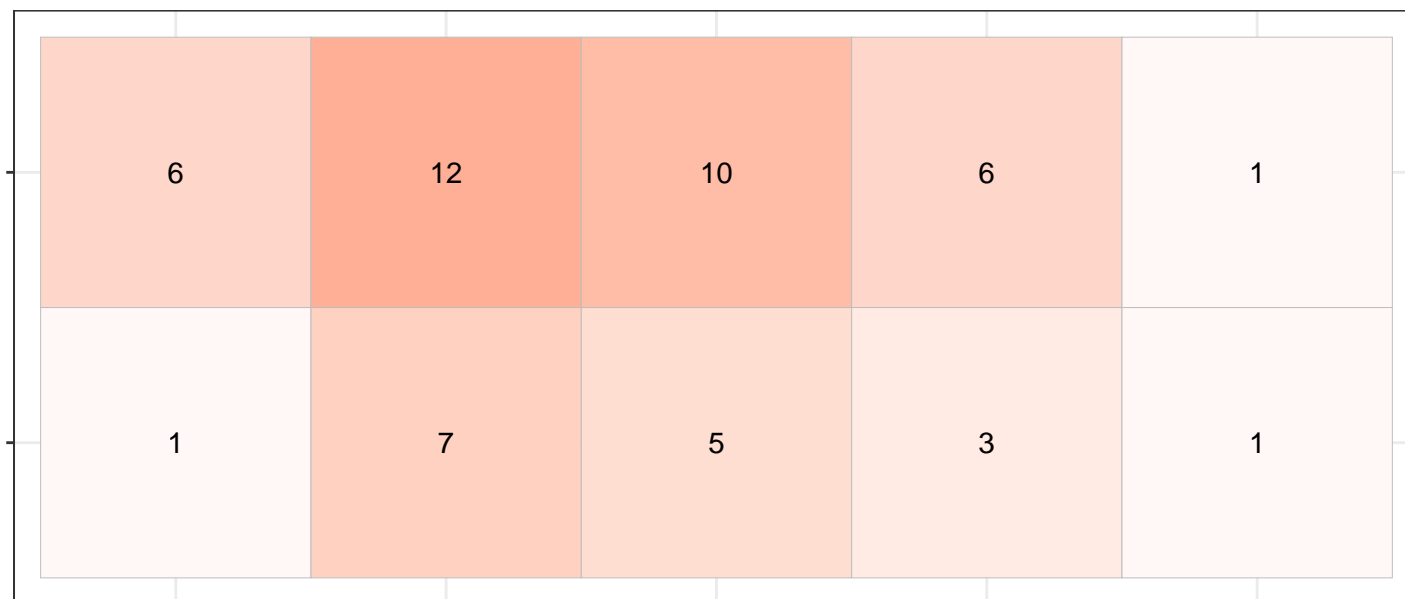
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10

0

I1.4. Predictability of Effects

I1.4. Predictability of Effects _____ I5. QA



Frequency



20

10

0

FUNCTIONALSUITABILITY

PERFORMANCEEFFICIENCY

RELIABILITY

SAFETY

SECURITY

I5. QA

I1.4.Predictability.of.Effects_____I6.Independence

I1.4.Predictability.of.Effects

NONDETERMINISTIC

DODETERMINISTIC

Frequency

20

10

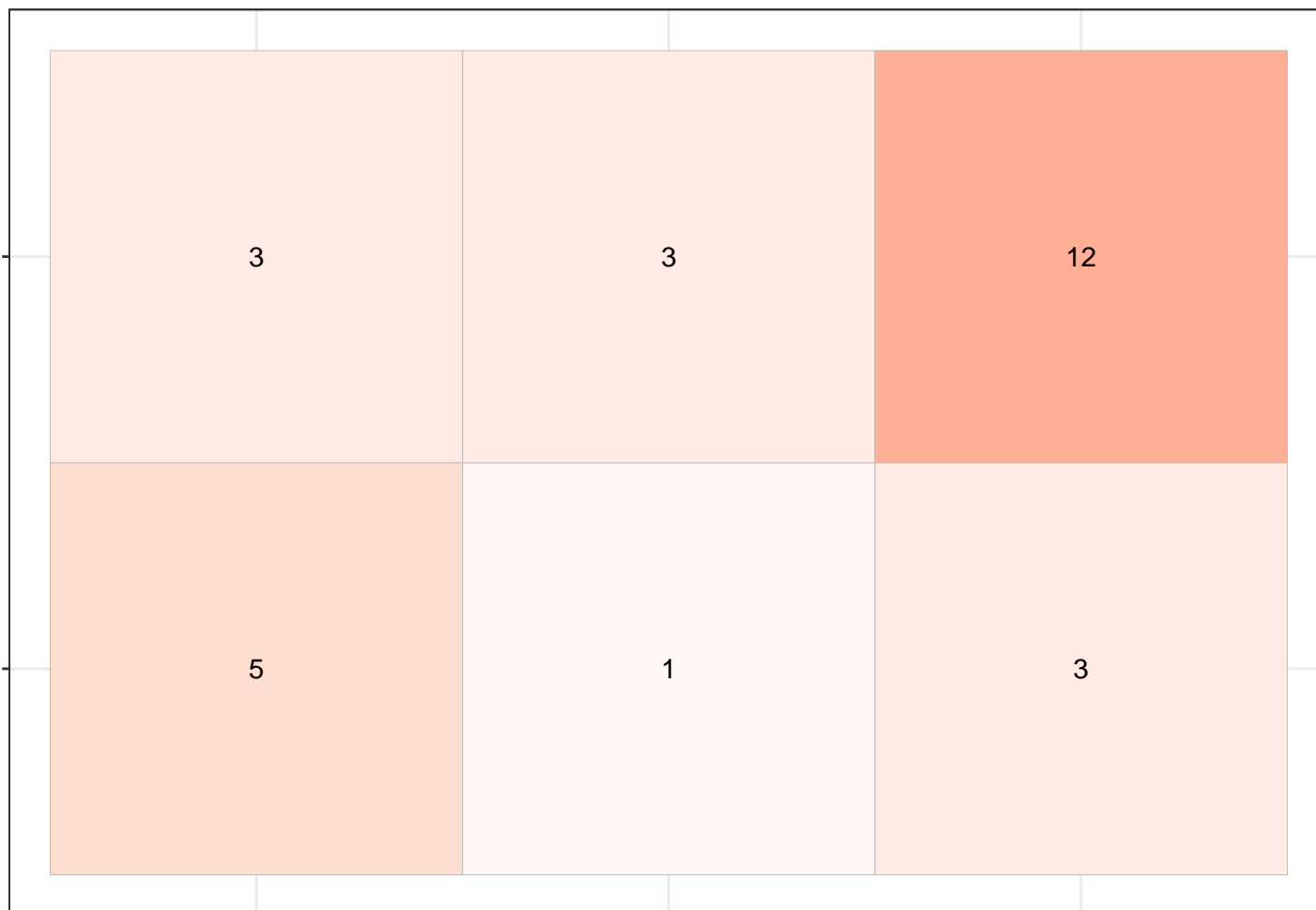
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DETACHABLE

INSEPARABLE

REQUIRESREPRESENTATION

I6.Independence



I1.4.Predictability.of.Effects_____I7.Deployment.Realness

I1.4.Predictability.of.Effects

NONDETERMINISTIC

10

7

DODETERMINISTIC

3

3

REAL

SIMULATED

I7.Deployment.Realness

Frequency



I1.4.Predictability.of.Effects_____I7.Mission.Realness

I1.4.Predictability.of.Effects

NONDETERMINISTIC

9

9

DODETERMINISTIC

6

3

REAL

SYNTHETIC

I7.Mission.Realness

Frequency

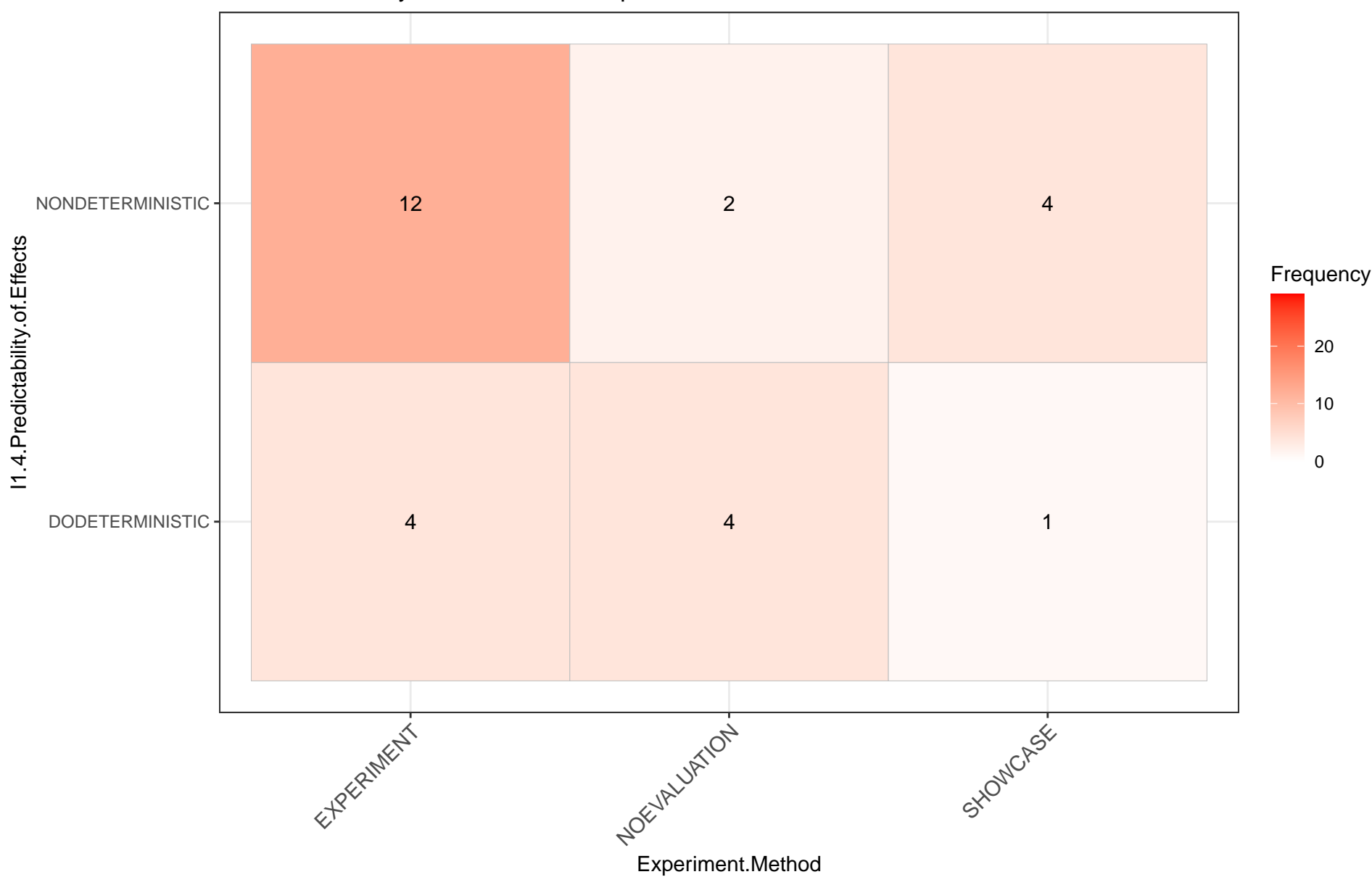


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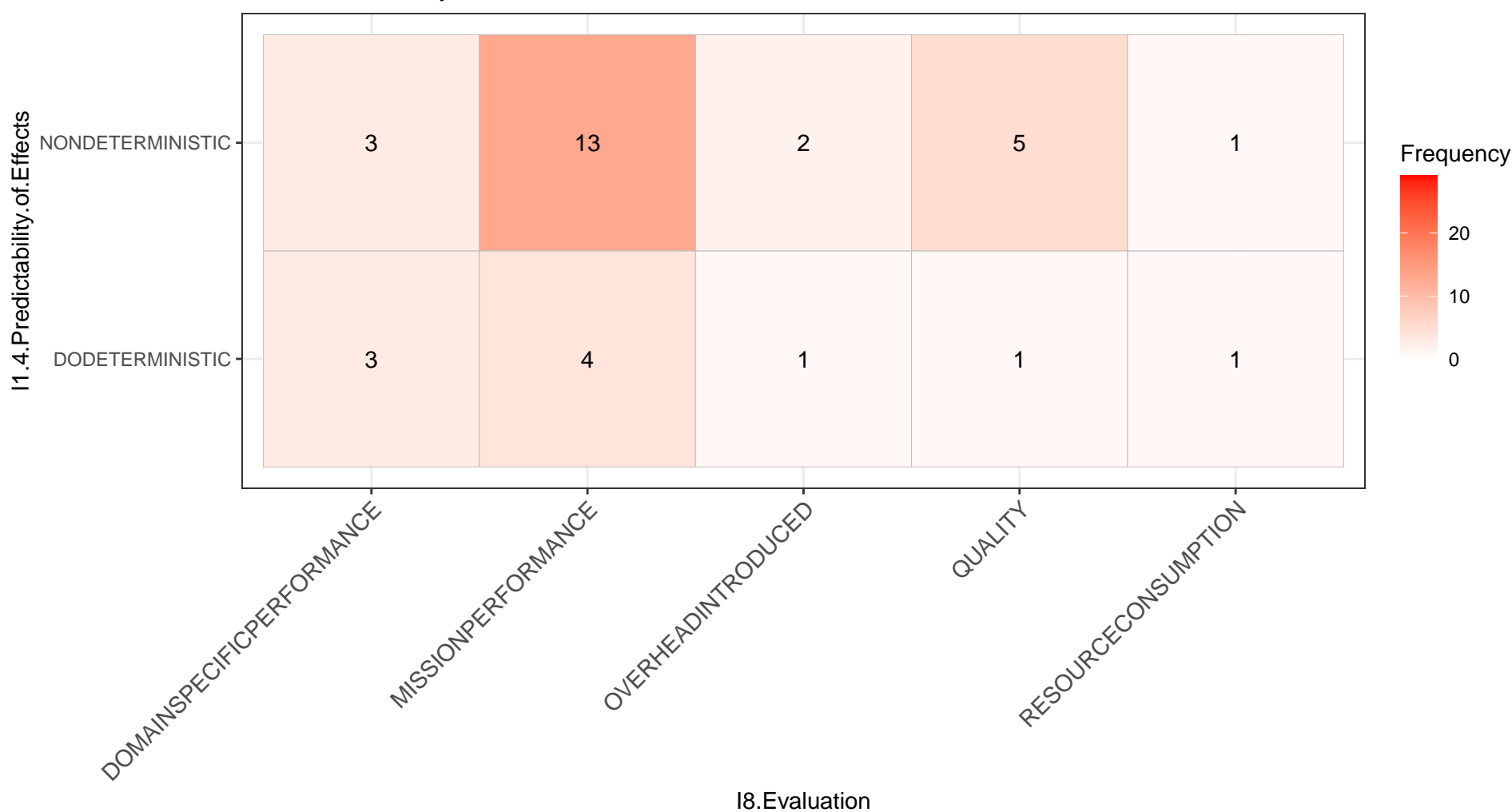
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I1.4.Predictability.of.Effects_____Experiment.Method



I1.4.Predictability.of.Effects_____I8.Evaluation

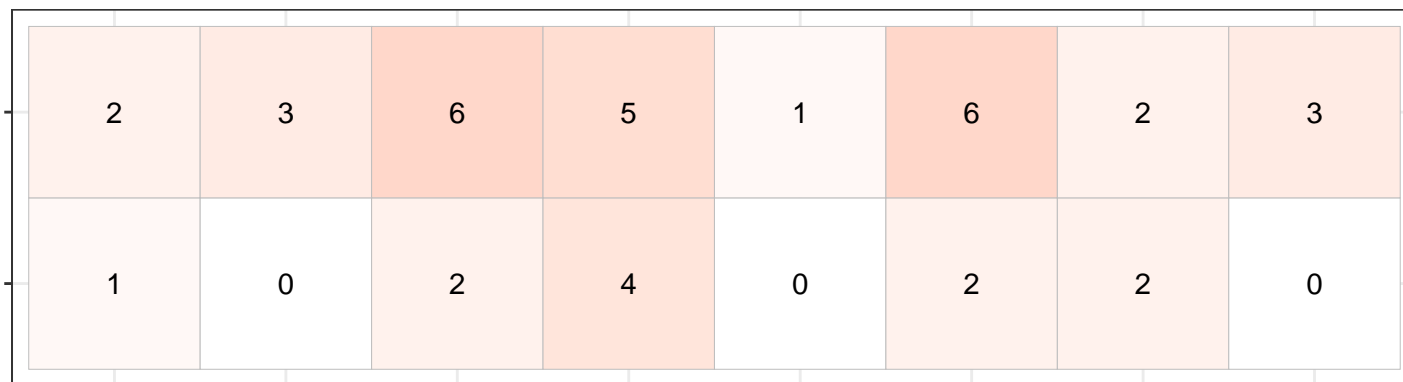


I1.4.Predictability.of.Effects

I1.4.Predictability.of.Effects_____I9.Adap..Logic

NONDETERMINISTIC

DODETERMINISTIC



Frequency



AIPLANNER

COMPARISONTOHRESHOLD

CONSTRAINTSOLVINGMODELCHECKING

DOMAINSPECIFICALGORITHM

NUMERICALOPTIMIZATION

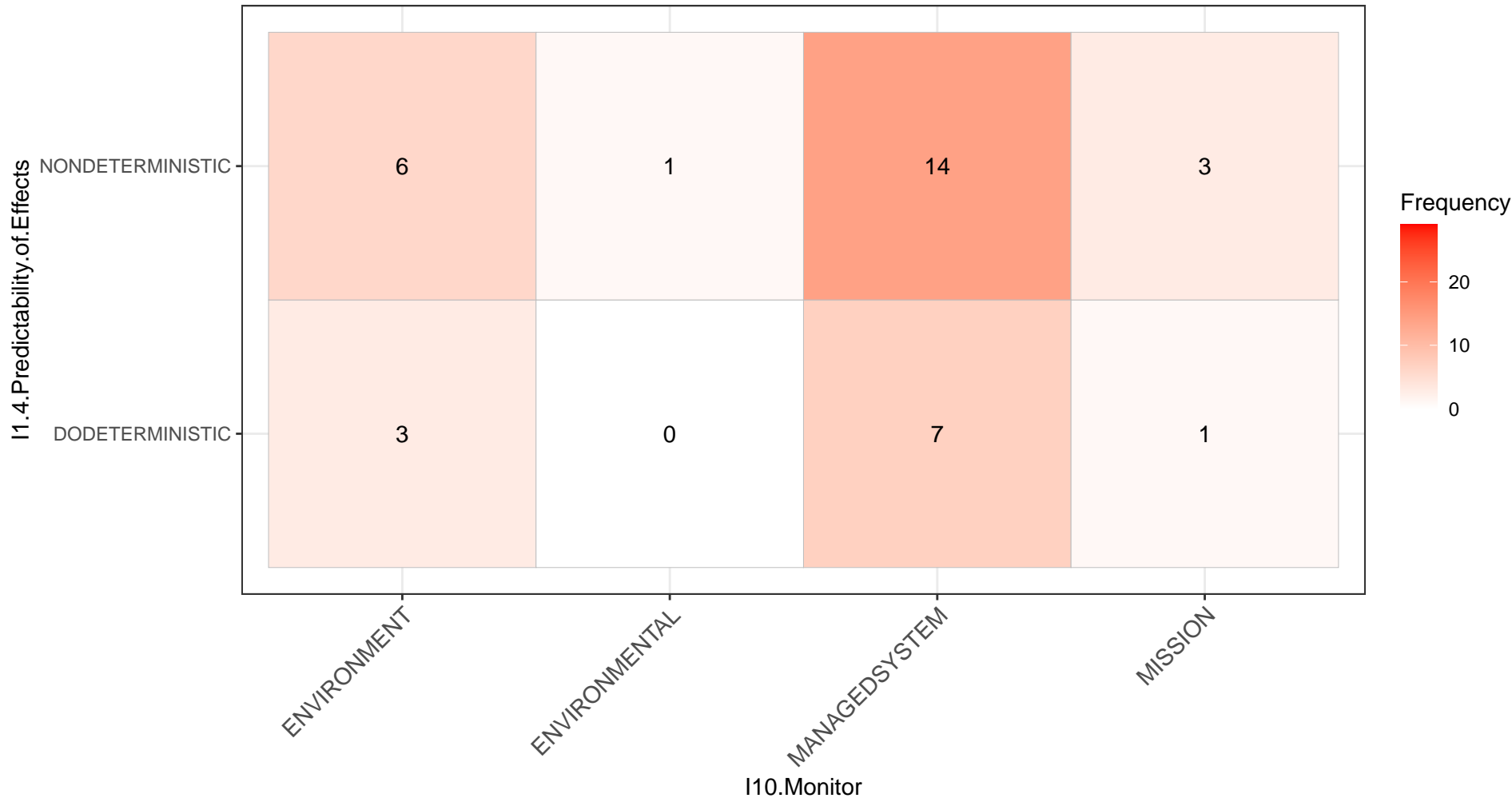
SEARCHPROCEDURE

SEMANTICREASONING

UTILITYCALCULATION

I9.Adap..Logic

I1.4.Predictability.of.Effects_____I10.Monitor



I1.4.Predictability.of.Effects

I1.4.Predictability.of.Effects_____I11.Analyze

NONDETERMINISTIC

DODETERMINISTIC

Frequency

20

10

0

ANALYZINGAGGREGATINGDATA

COMPARISONTOEXPECTEDSYSTEMSTATE

COMPARISONTOTRESHOLDS

DONEDURINGPLAN

LOGICALINFERENCE

OTHER

TASKUSERDRIVEN

I11.Analyze

5

5

4

1

3

2

0

0

2

1

0

3

0

1

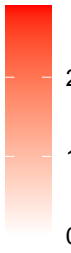
I1.4.Predictability.of.Effects_____I12.Plan

I1.4.Predictability.of.Effects

NONDETERMINISTIC

DODETERMINISTIC

Frequency

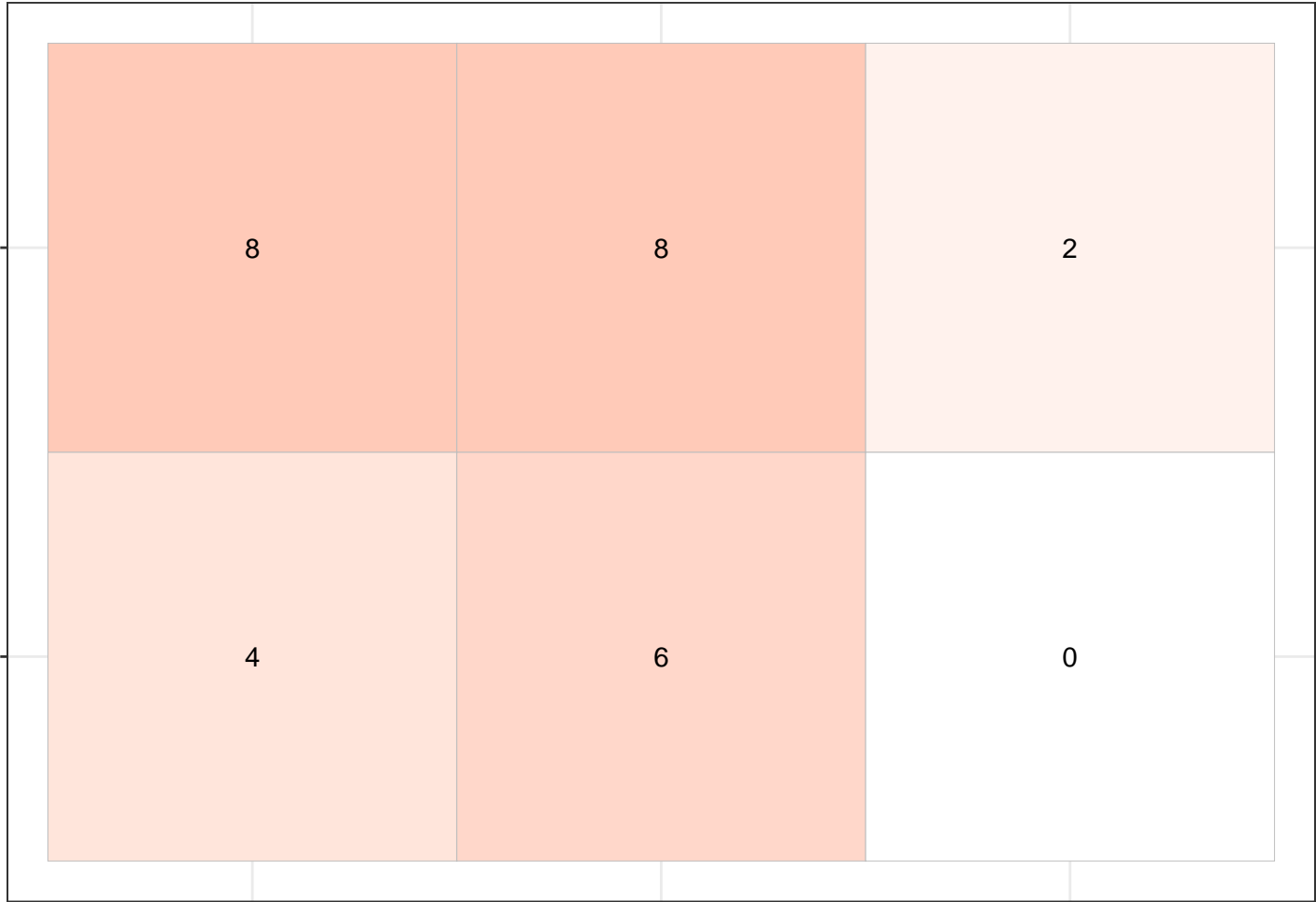


DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPLANNINGLANGUAGES

I12.Plan



I1.4.Predictability.of.Effects_____I13.Execute

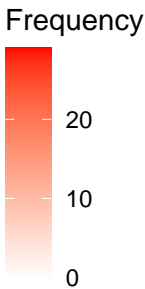
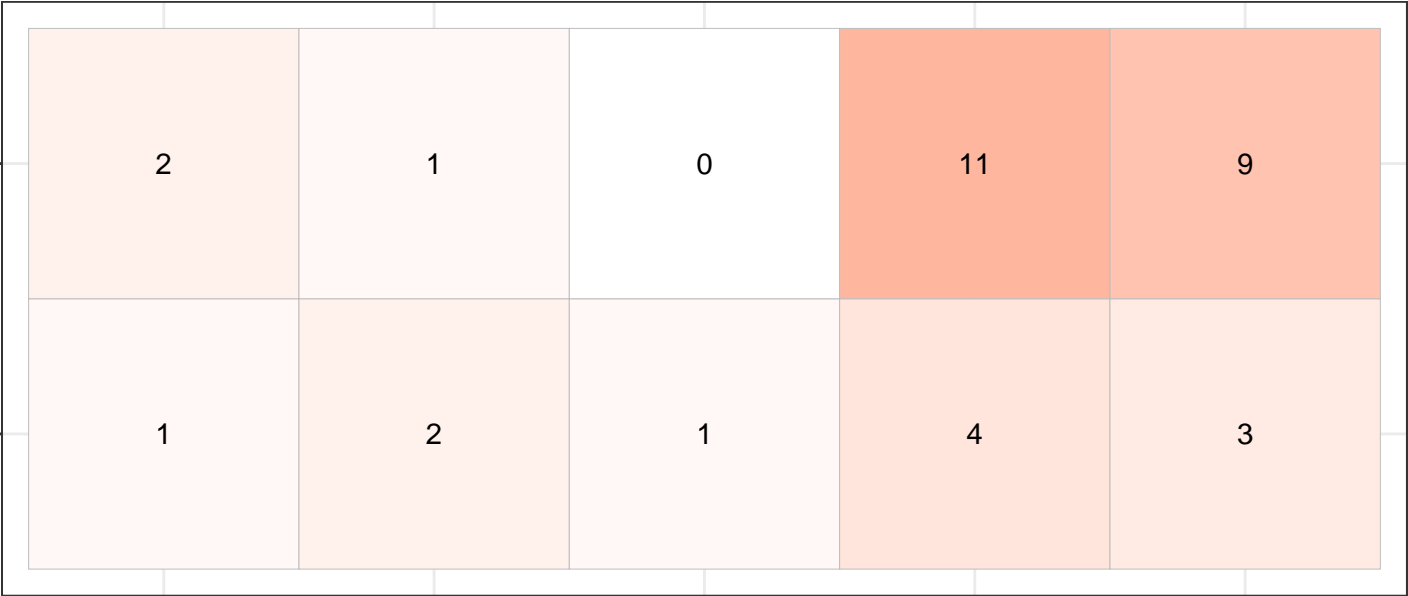
I1.4.Predictability.of.Effects

NONDETERMINISTIC

DODETERMINISTIC

BEHAVIORAL TASK
CHANGE IN RELATIONSHIPS BETWEEN COMPONENTS
COMPONENT REDEPLOYMENT
REPARAMETERIZATION OF COMPONENTS
SWAPPING AROUND OF COMPONENTS

I13.Execute

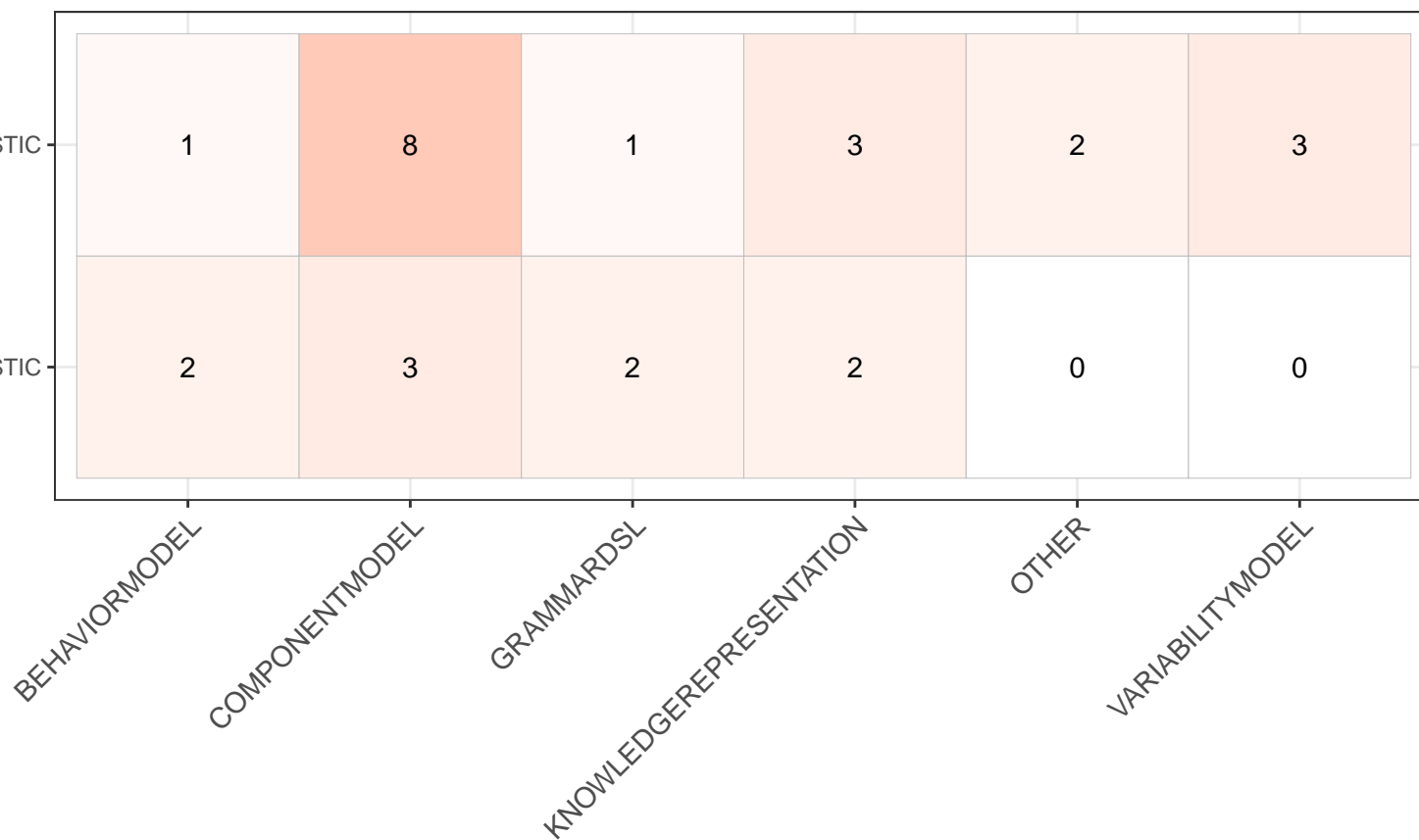


I1.4.Predictability.of.Effects

I1.4.Predictability.of.Effects_____I14.Knowledge

NONDETERMINISTIC

DODETERMINISTIC



Frequency



20

10

0

I14.Knowledge

I1.4.Overhead.of.Effects_____I1.4.Resilience.of.Effects

I1.4.Overhead.of.Effects

INSIGNIFICANT

DOSIGNIFICANT

DEPENDENT

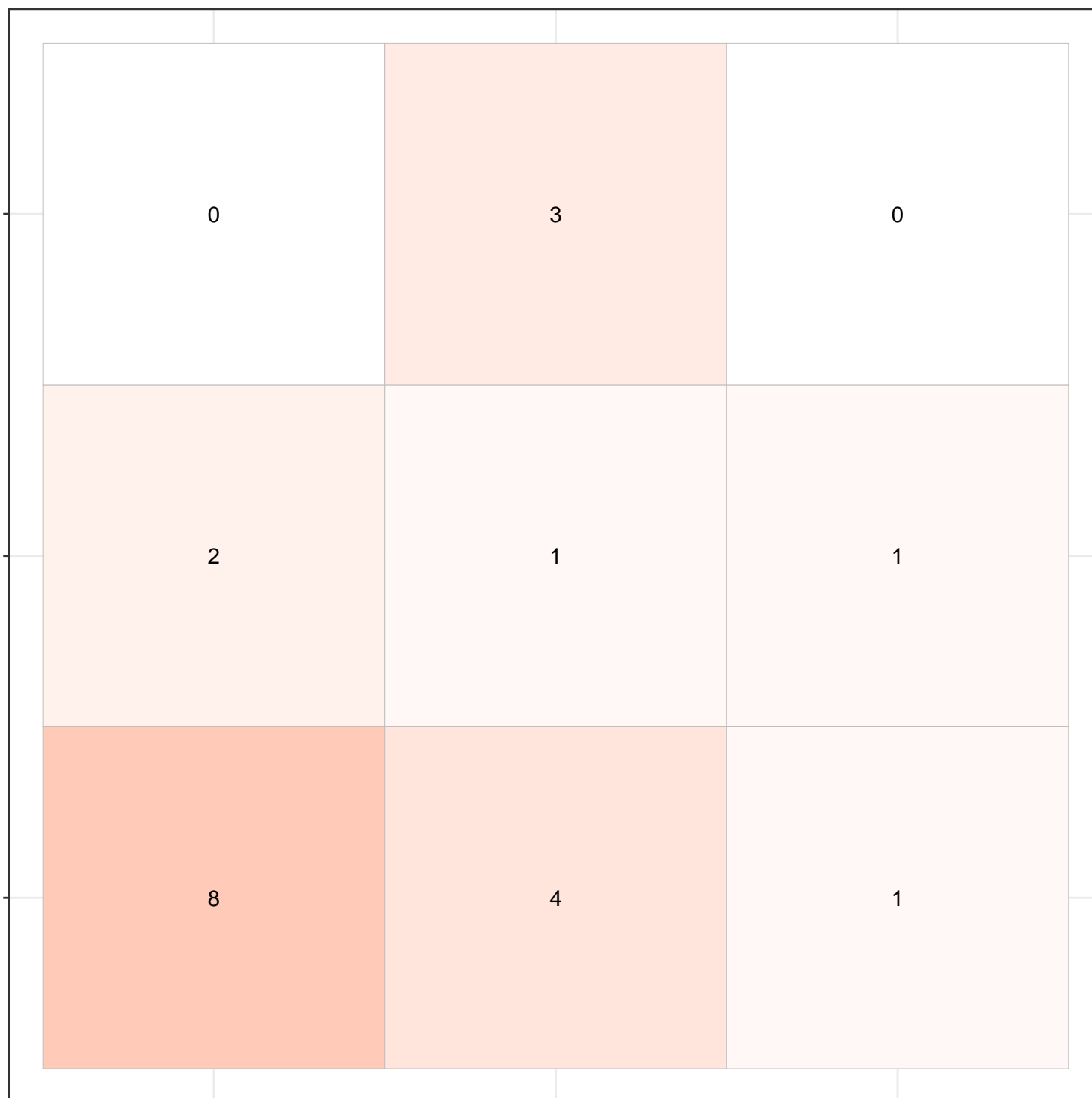
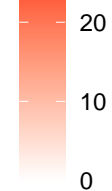
DEPENDENT

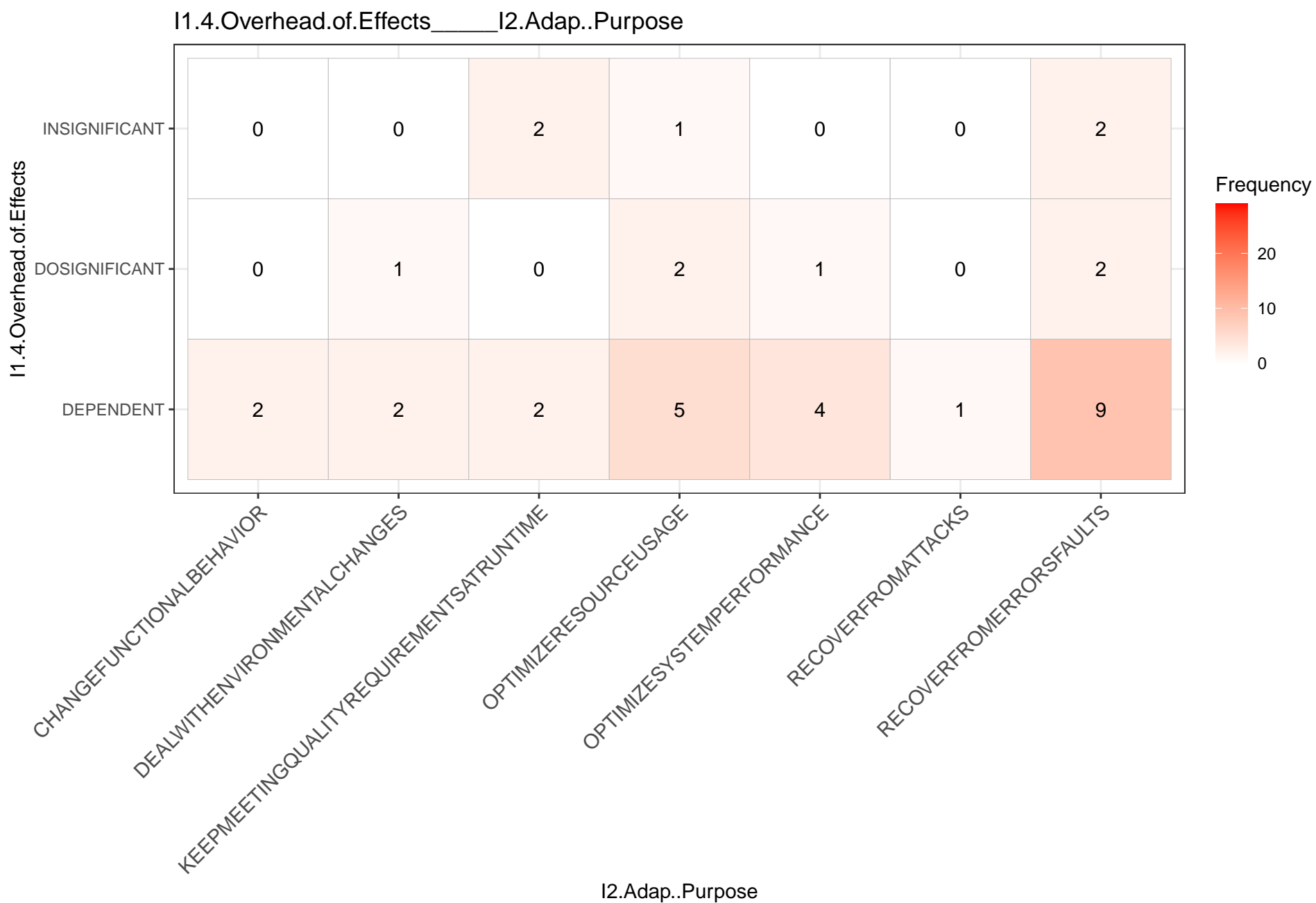
DORESILIENT

IRRESILIENT

I1.4.Resilience.of.Effects

Frequency

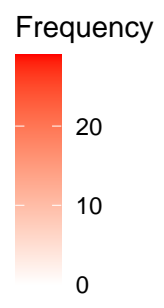




I1.4.Overhead.of.Effects

I1.4.Overhead.of.Effects_____I3.Robot.Type

INSIGNIFICANT	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	
DOSIGNIFICANT	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	
DEPENDENT	0	0	1	2	0	2	1	1	0	1	1	1	1	0	0	2	0	0	0	1	0	0	3	0	0	0
	BOXERCLEARPATH	CRAWLERTERMINATORBOT	FIELDMOBILEROBOTS	HETEROGENOUSROBOTS	HEXAII	HEXMANIPULATOR	MOBILESERVICEROBOT	IROBOTCREATE2	MOBILEROBOTS	MOBILEROBOTTERRESTRIAL	MOBILEROBOTTIAGO	MOBILESERVICEROBOT	MSUEVORALLYMOBILETERRESTRIAL	MULTIPLEHEXROTOR	NAOROBOT	PIONEER3DX	QUADROCOPTER	RESCUE	SINGLESERVINGROTATIONROBOT	TEDUSARTERRESTRIALSEARCH	TRIGLIDEINDUSTRIALASSEMBLY	TURTLEBOT	WAREHOUSEDELIVERYROBOT	WHICHISANINDUSTRIALAGV	TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	



I3.Robot.Type

I1.4.Overhead.of.Effects_____I4.Robo.SW

I1.4.Overhead.of.Effects

INSIGNIFICANT

DOSIGNIFICANT

DEPENDENT

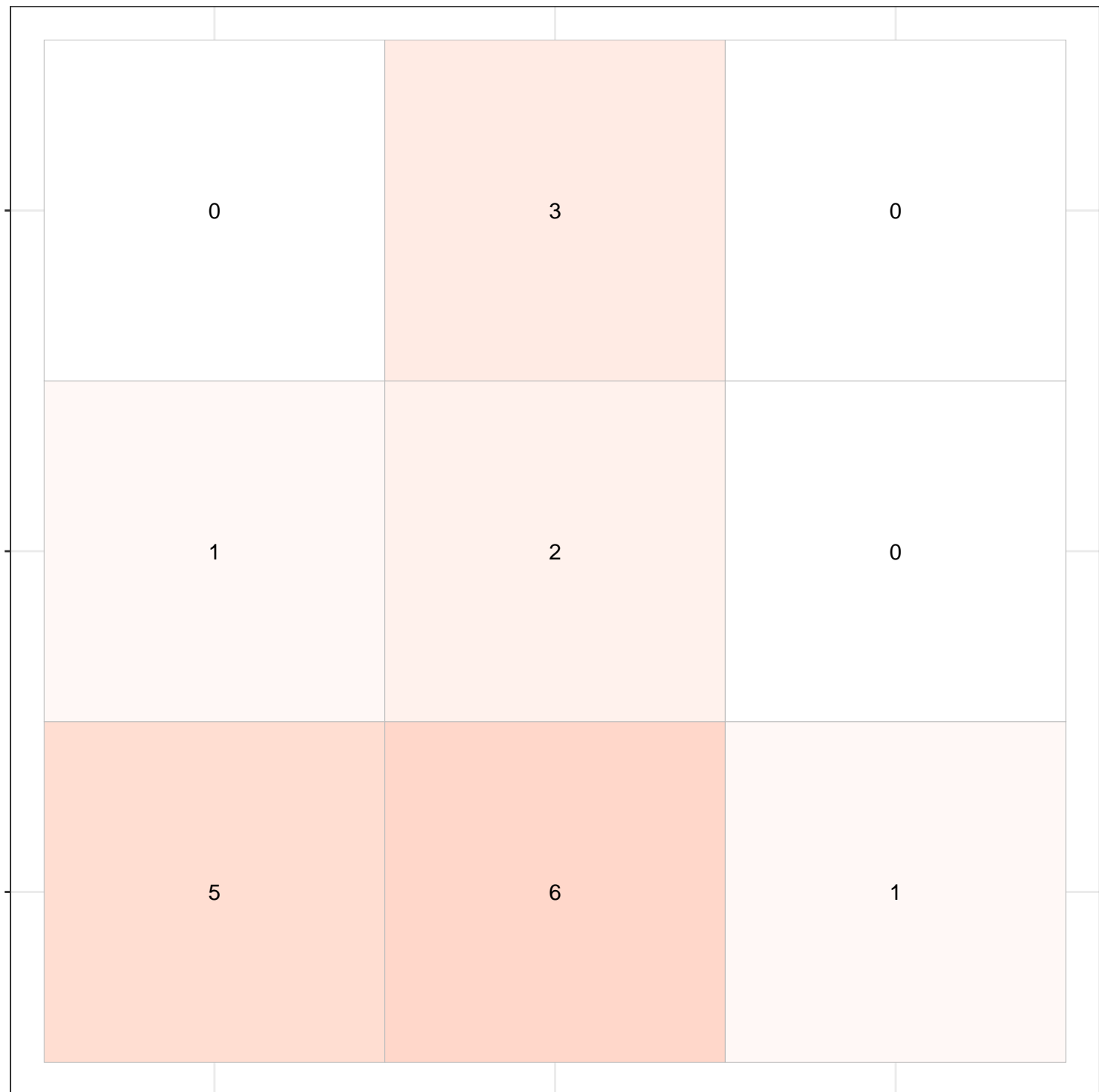
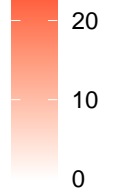
OTHER

ROS1

ROS2

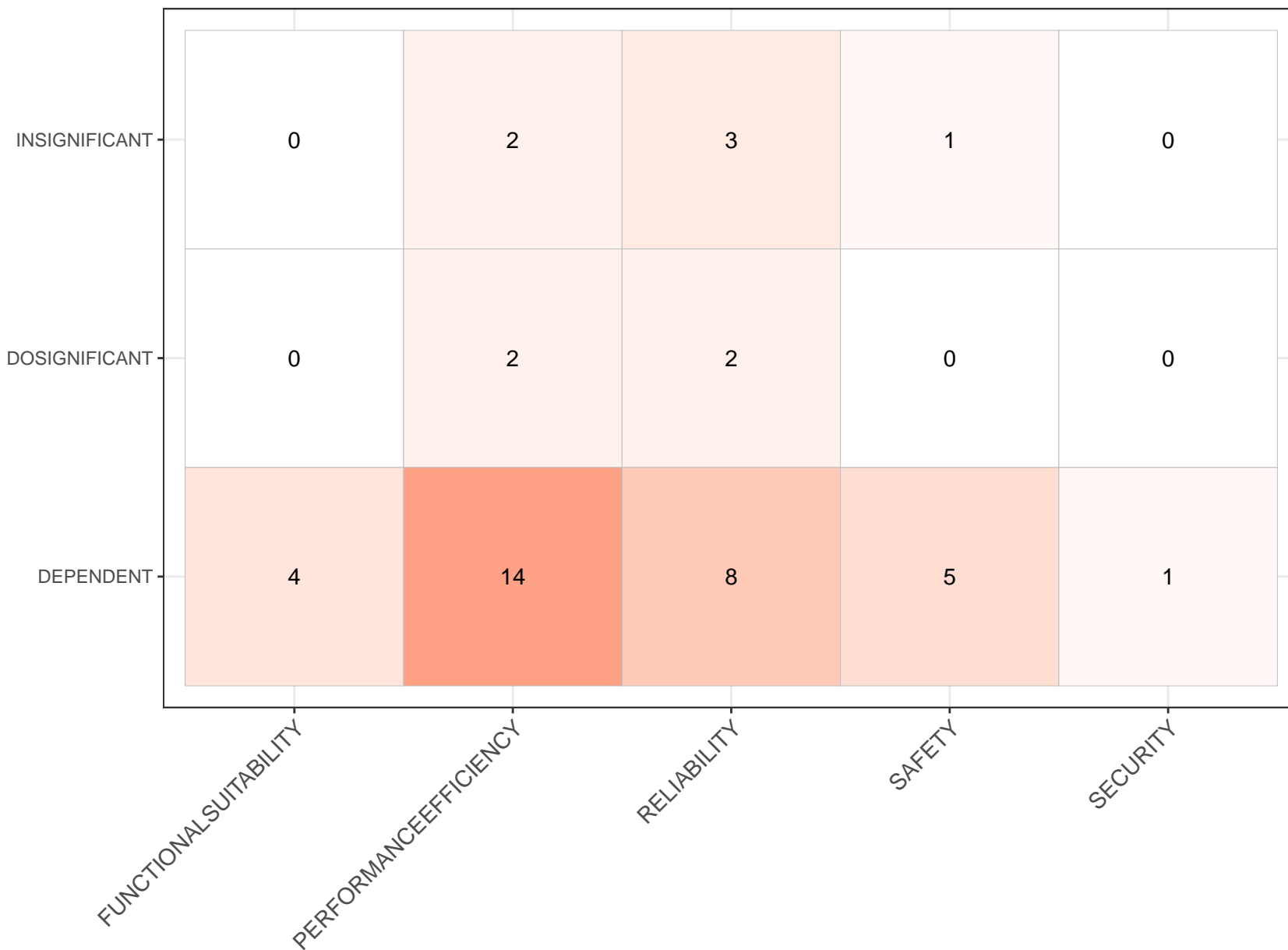
I4.Robo.SW

Frequency



I1.4.Overhead.of.Effects_____I5.QA

I1.4.Overhead.of.Effects

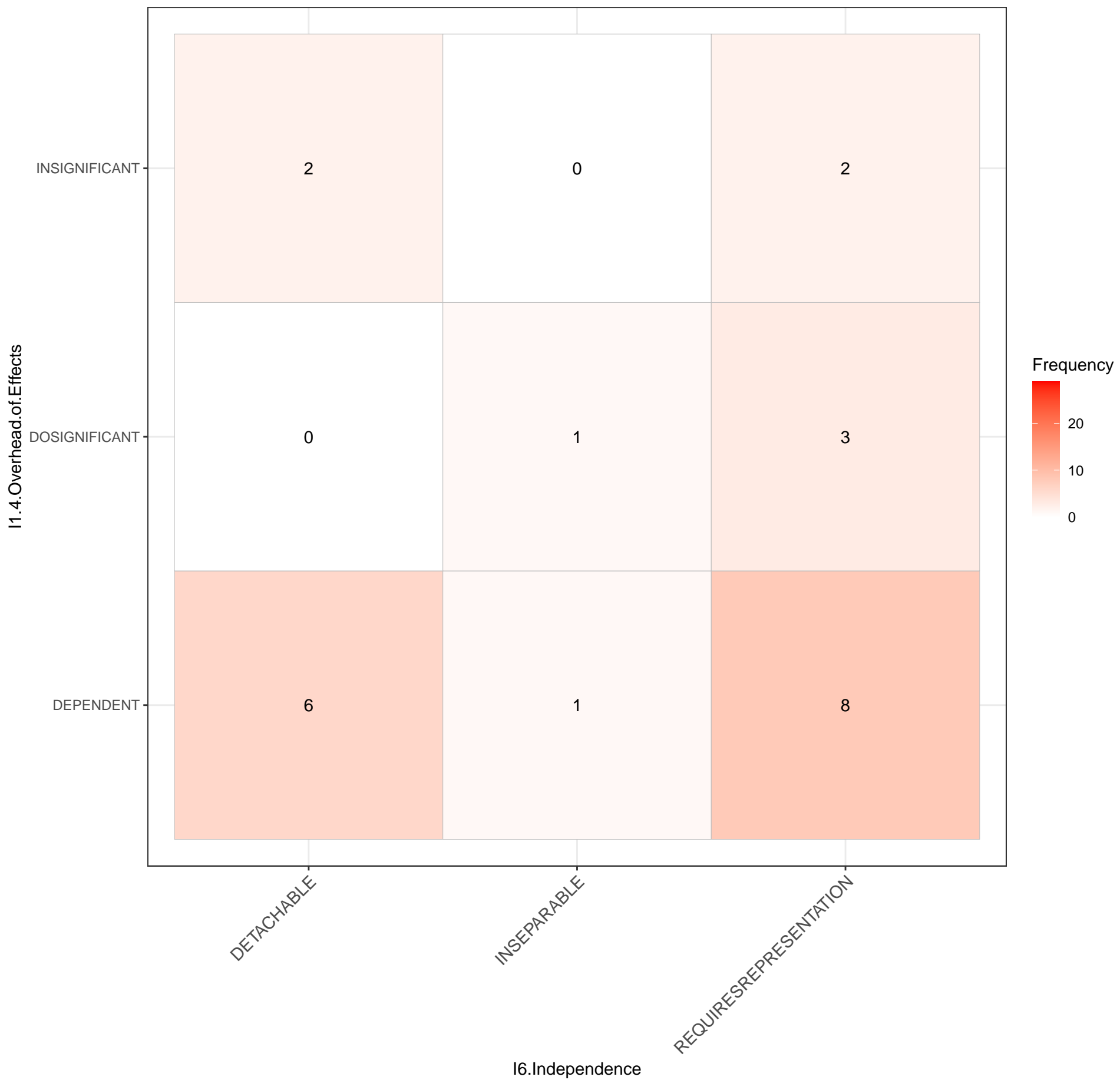


Frequency

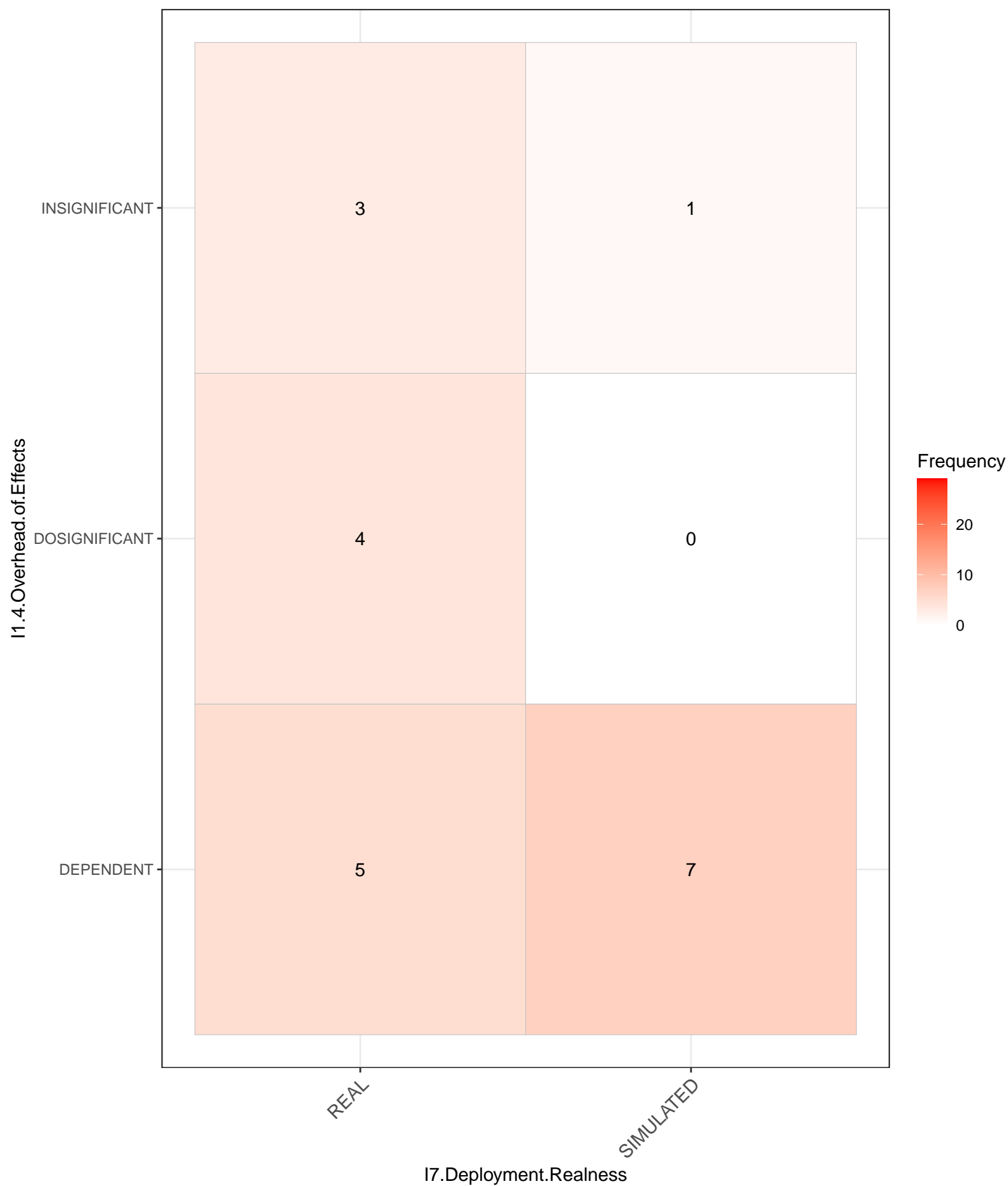


I5.QA

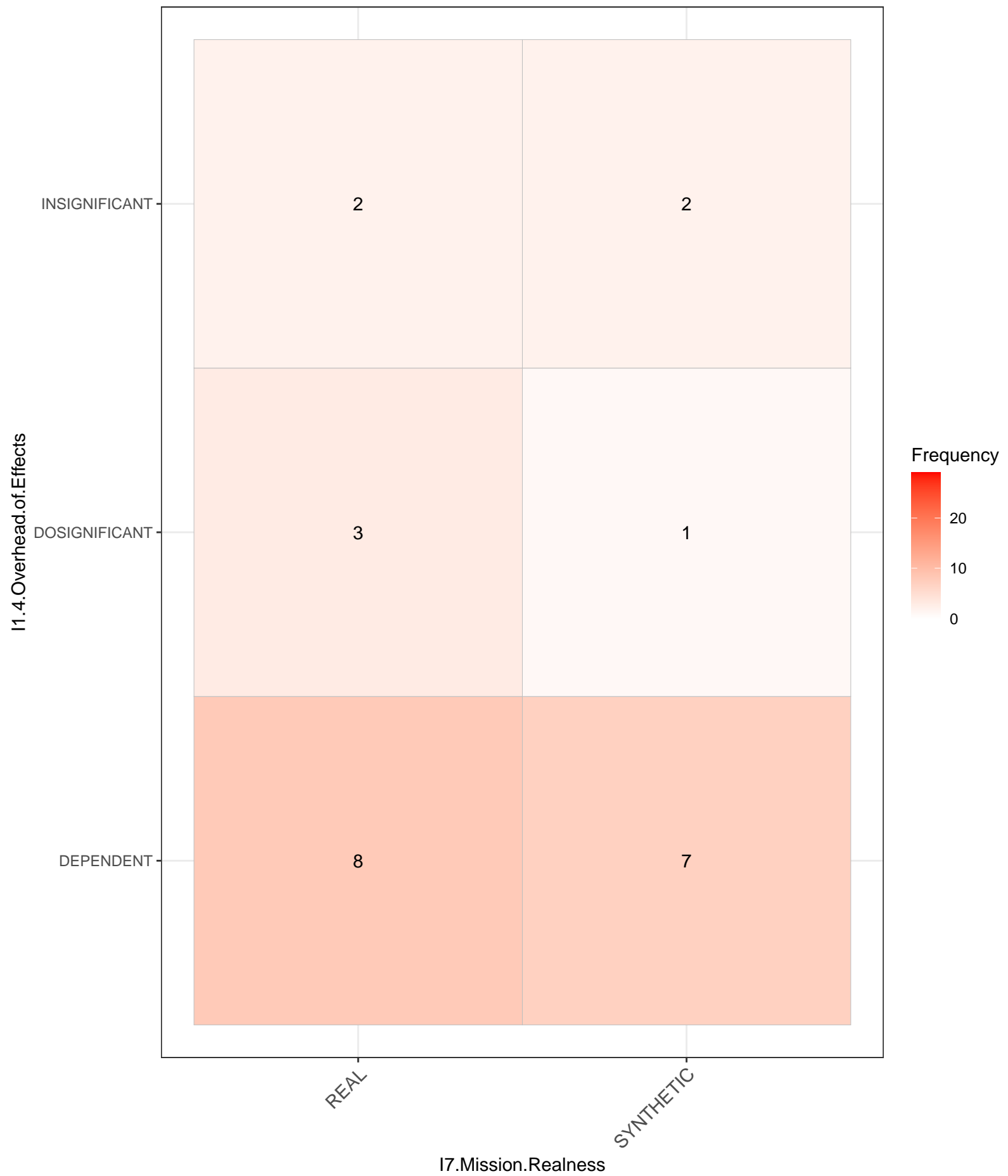
I1.4.Overhead.of.Effects_____I6.Independence



I1.4.Overhead.of.Effects_____I7.Deployment.Realness

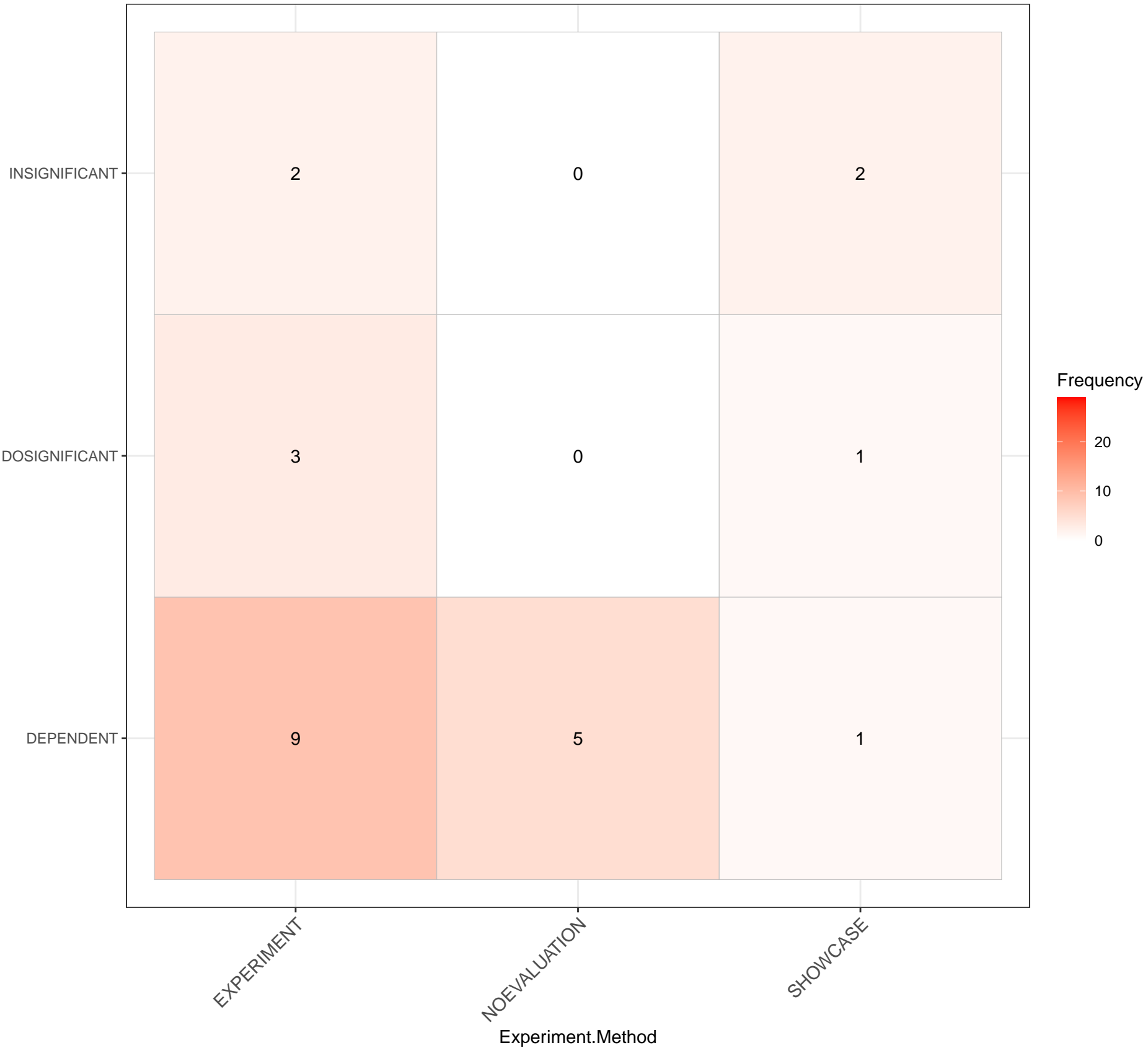


I1.4.Overhead.of.Effects_____I7.Mission.Realness

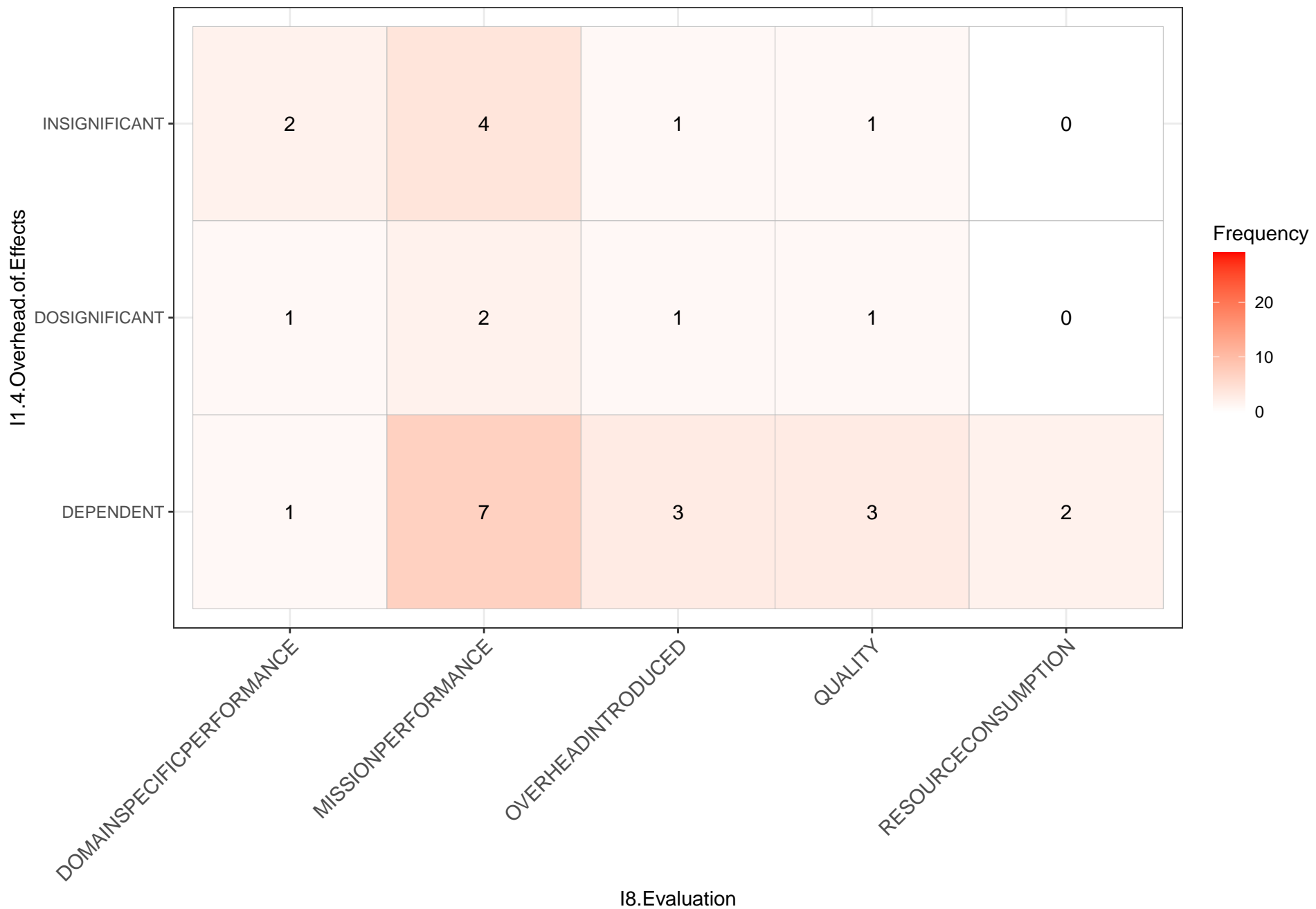


I1.4.Overhead.of.Effects_____Experiment.Method

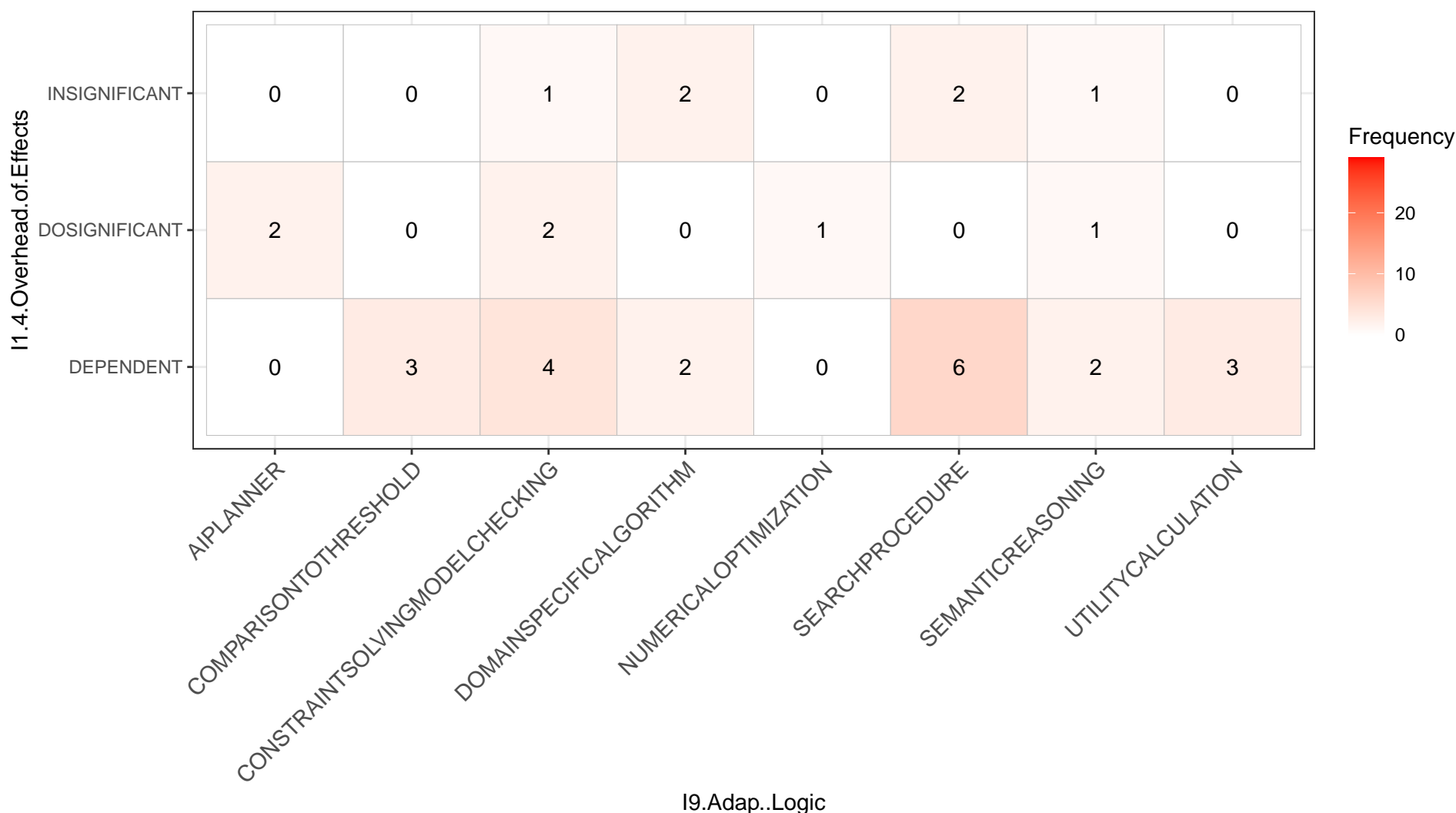
I1.4.Overhead.of.Effects



I1.4.Overhead.of.Effects_____I8.Evaluation

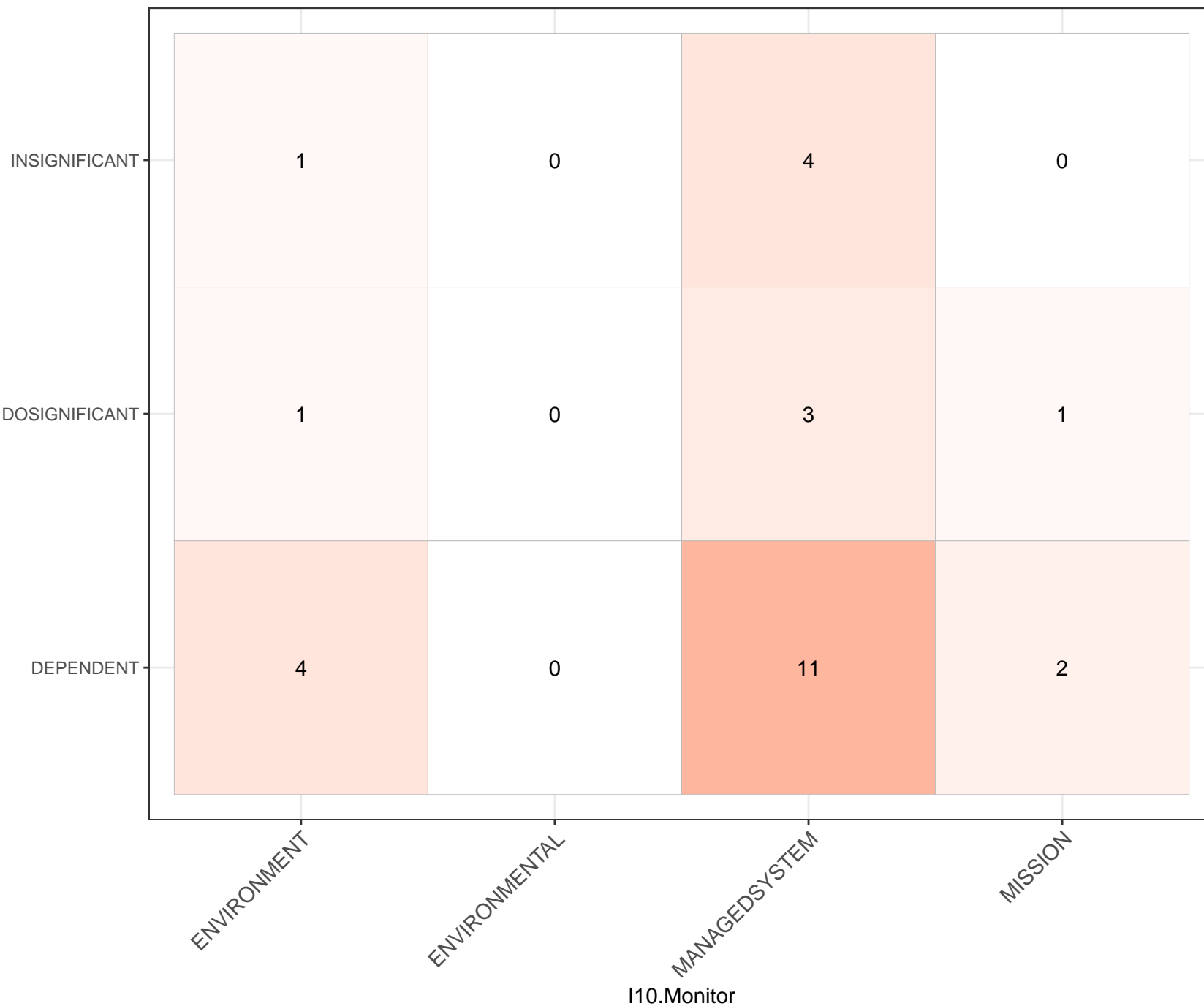


I1.4.Overhead.of.Effects_____I9.Adap..Logic

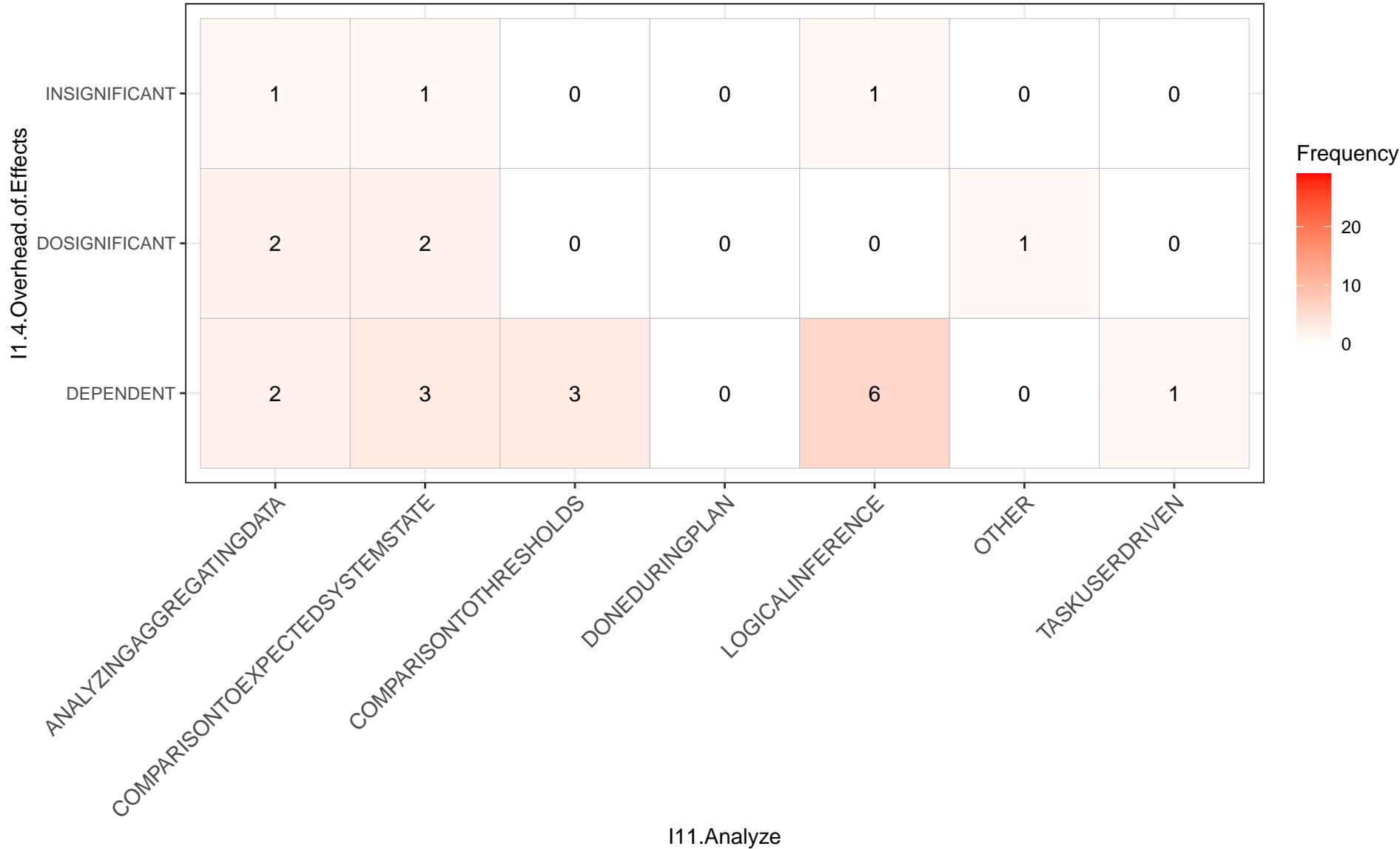


I1.4.Overhead.of.Effects_____I10.Monitor

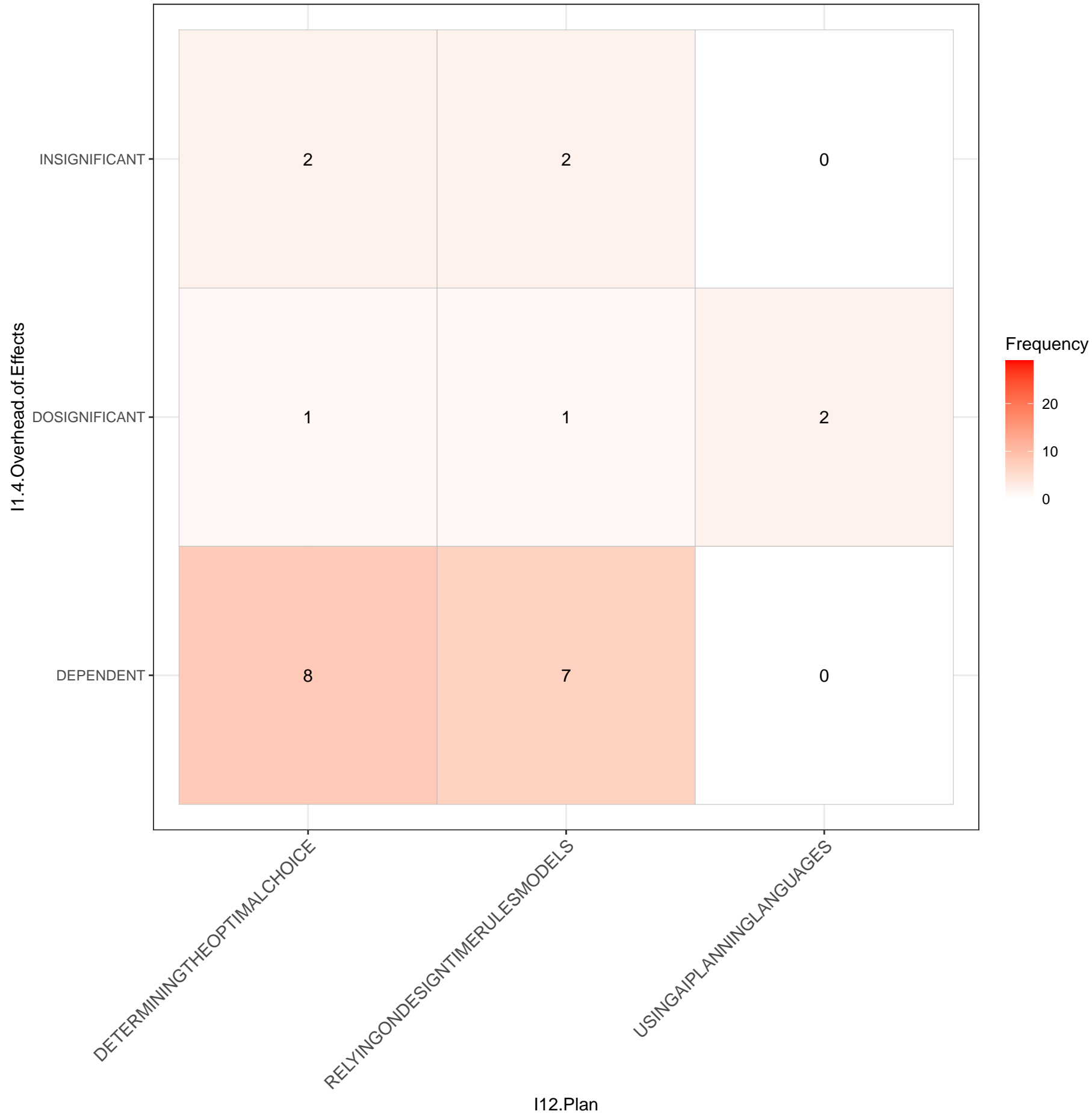
I1.4.Overhead.of.Effects



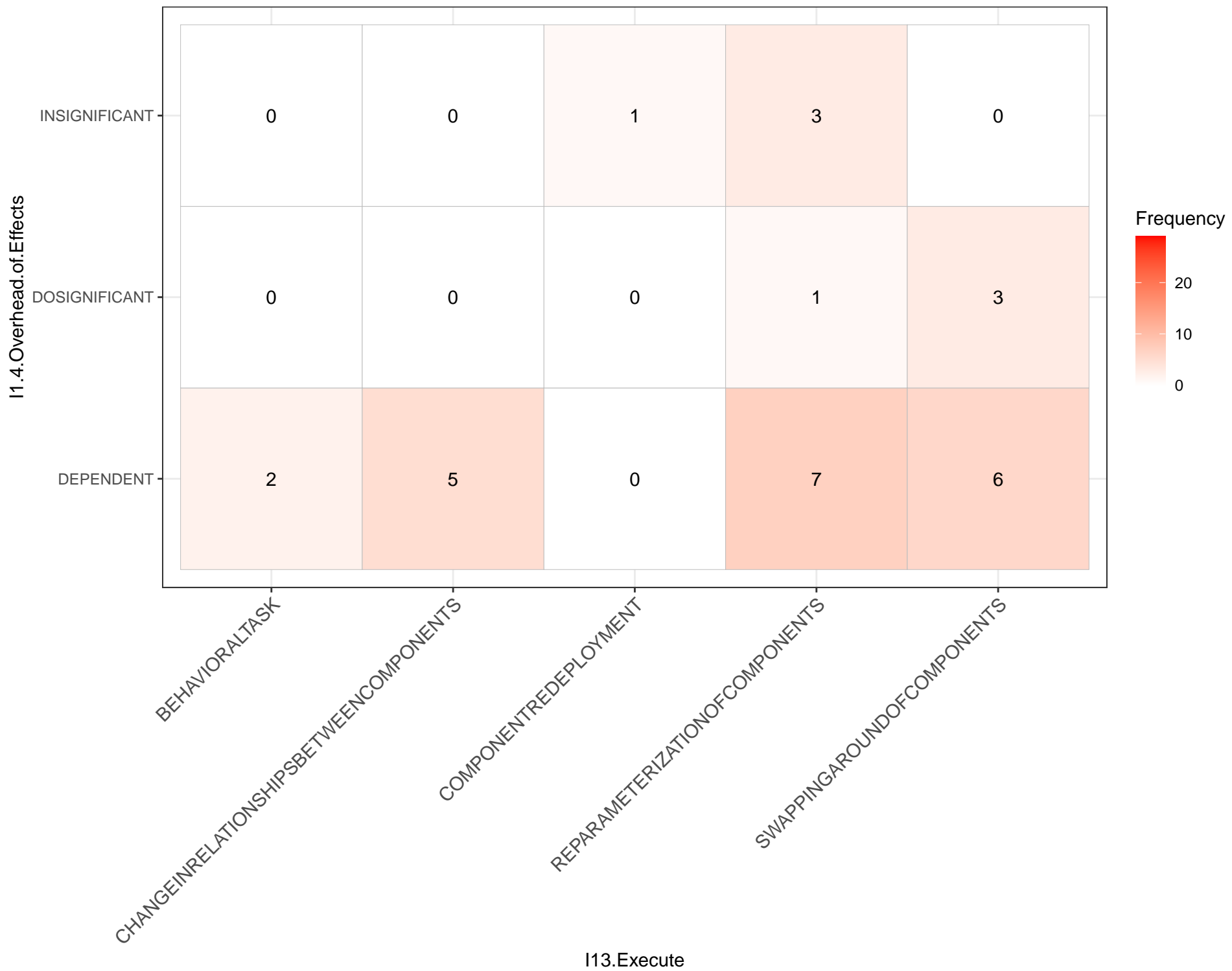
I1.4.Overhead.of.Effects_____I11.Analyze



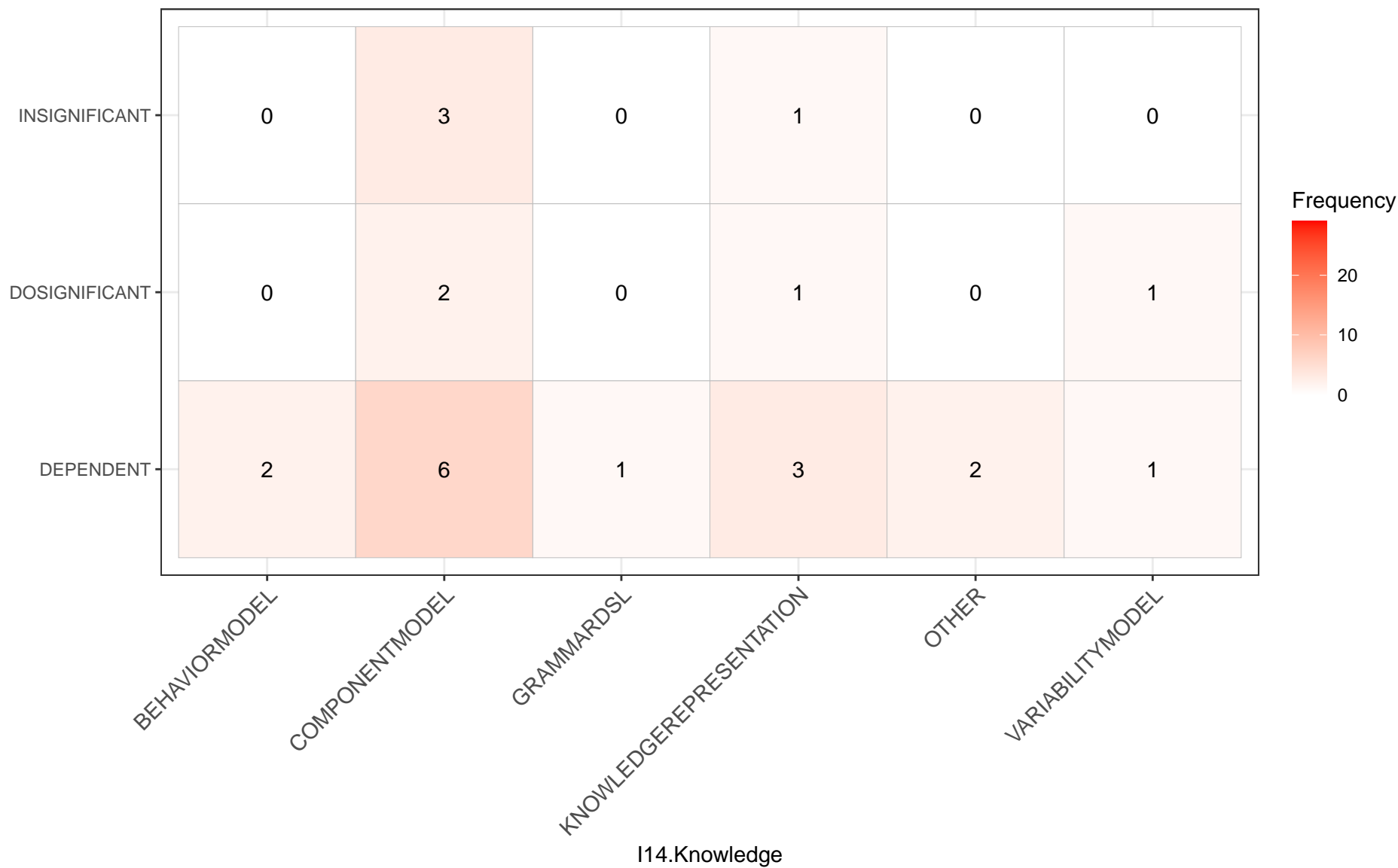
I1.4.Overhead.of.Effects_____I12.Plan



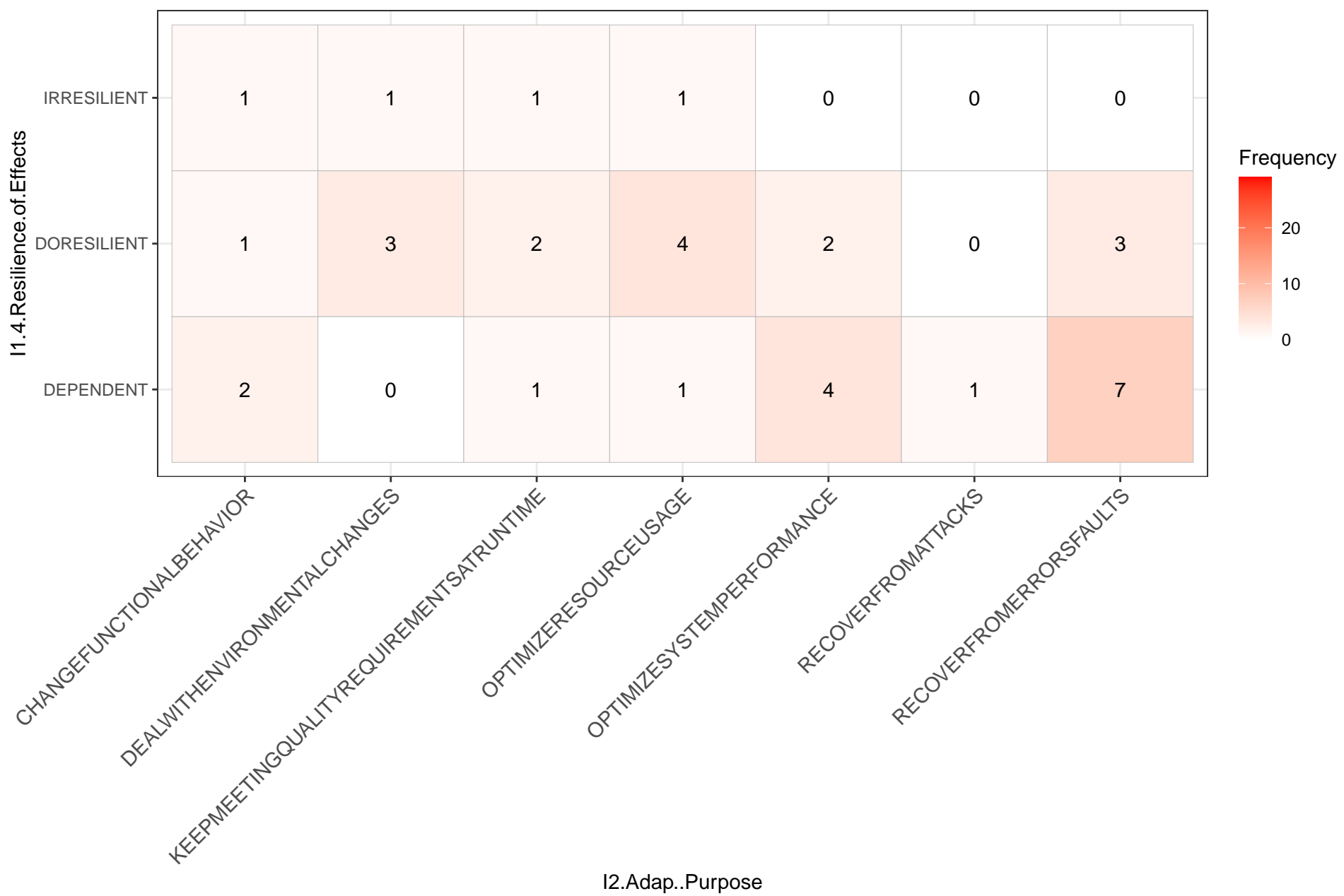
I1.4.Overhead.of.Effects_____I13.Execute



I1.4.Overhead.of.Effects_____I14.Knowledge

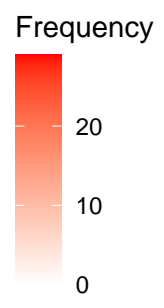
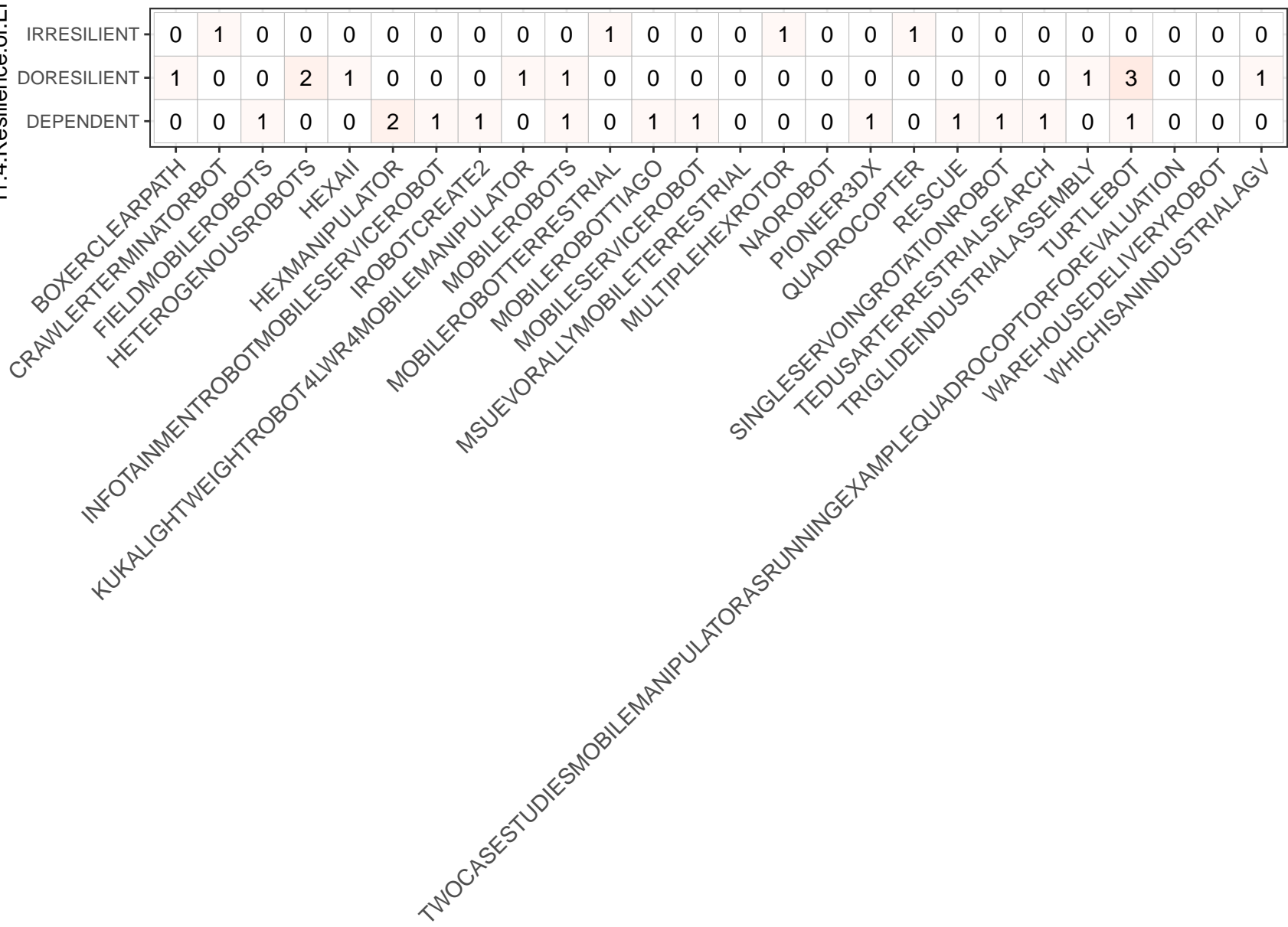


I1.4.Resilience.of.Effects_____I2.Adap..Purpose



I1.4.Resilience.of.Effects

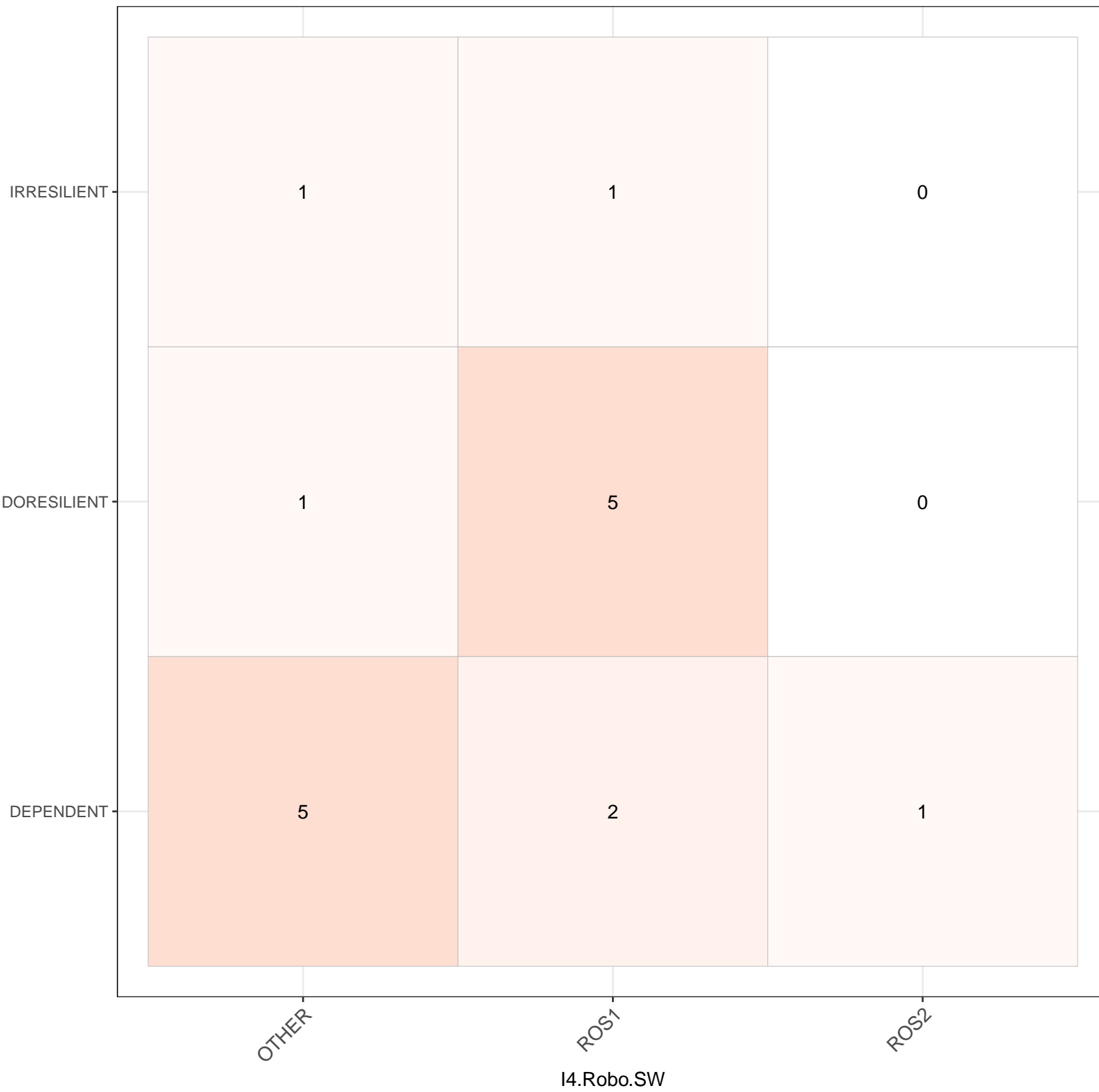
I1.4.Resilience.of.EffectsI3.Robot.Type



I3.Robot.Type

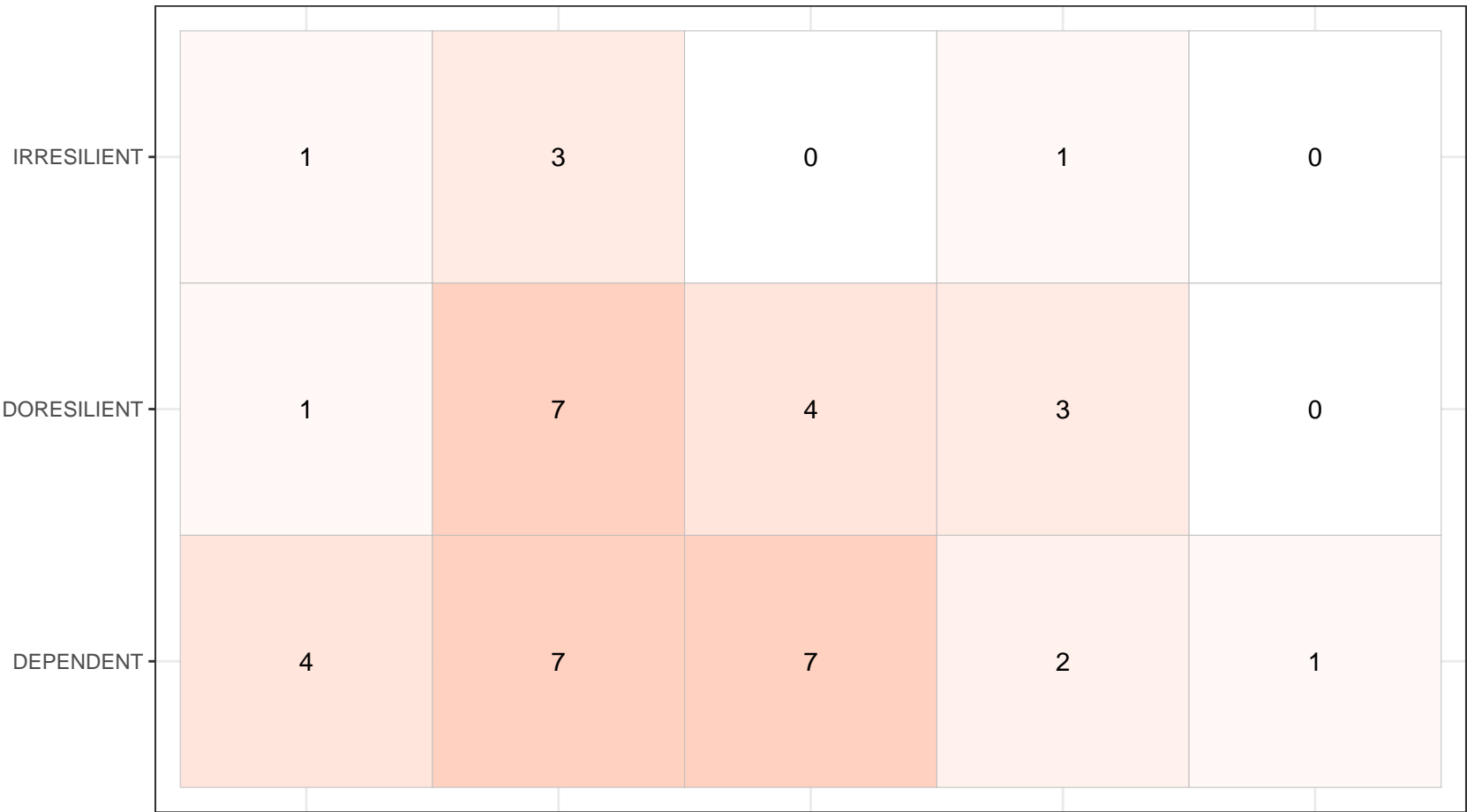
I1.4.Resilience.of.Effects_____I4.Robo.SW

I1.4.Resilience.of.Effects



I1.4.Resilience.of.Effects_____I5.QA

I1.4.Resilience.of.Effects



Frequency

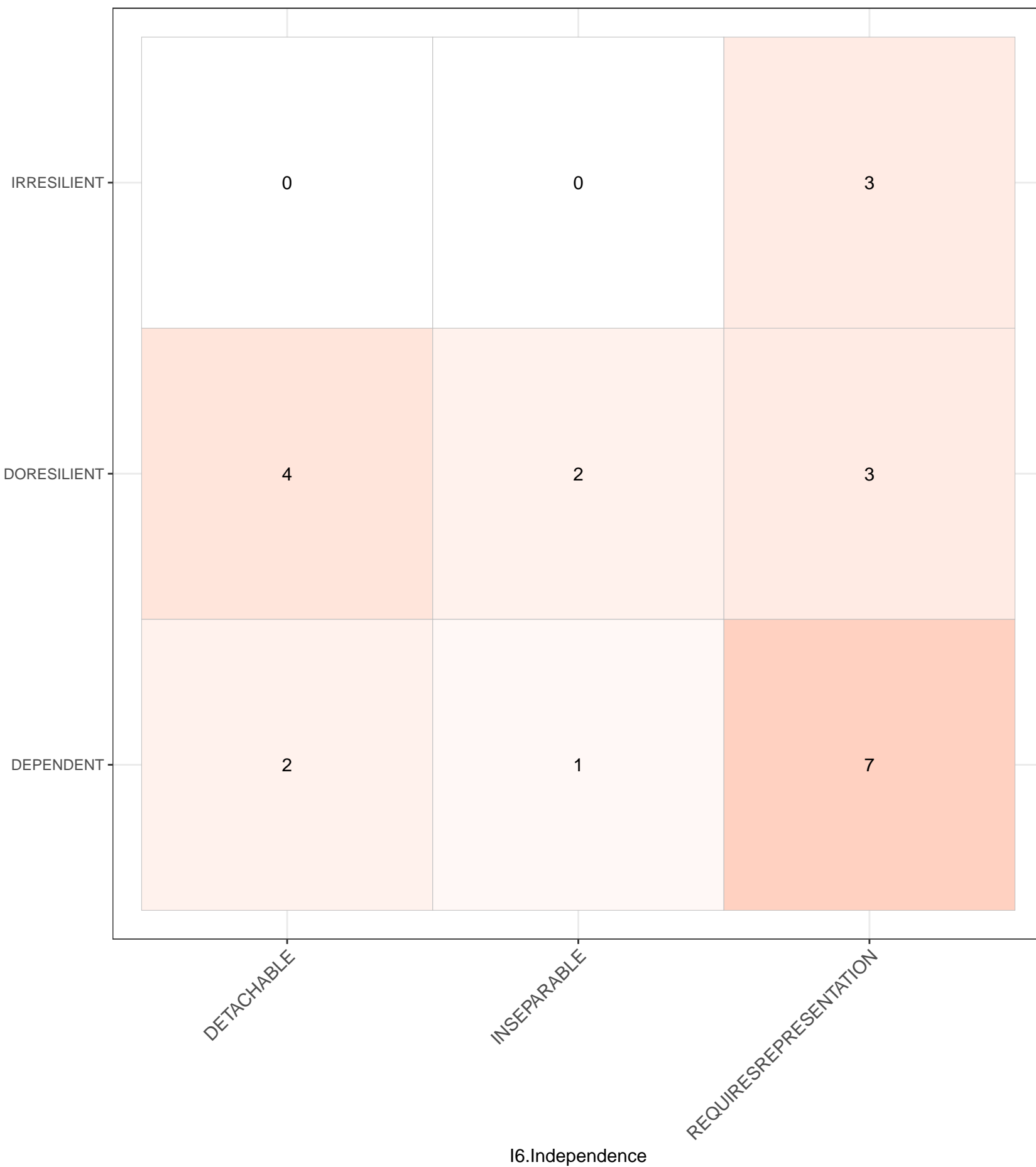


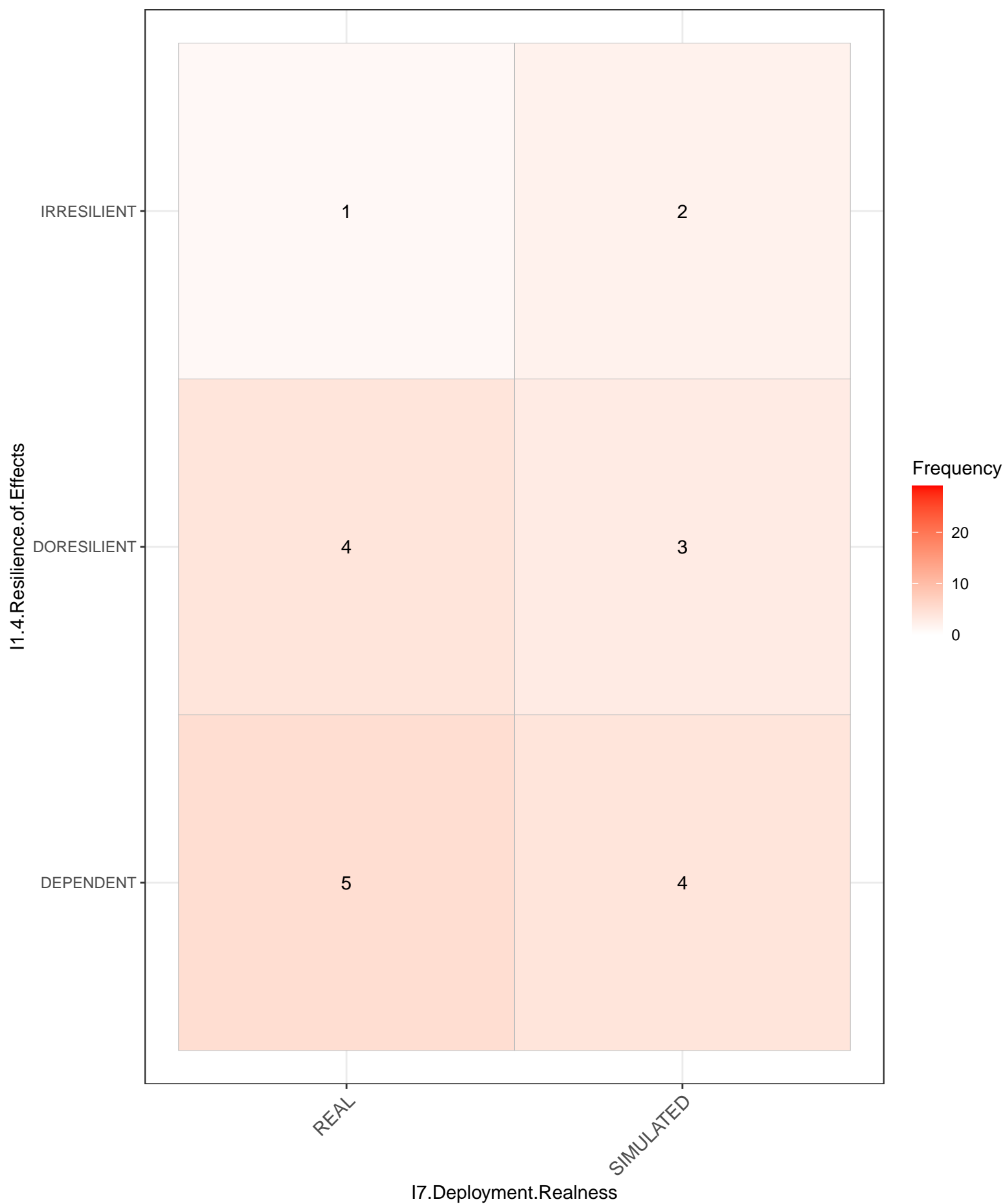
20
10
0

I5.QA

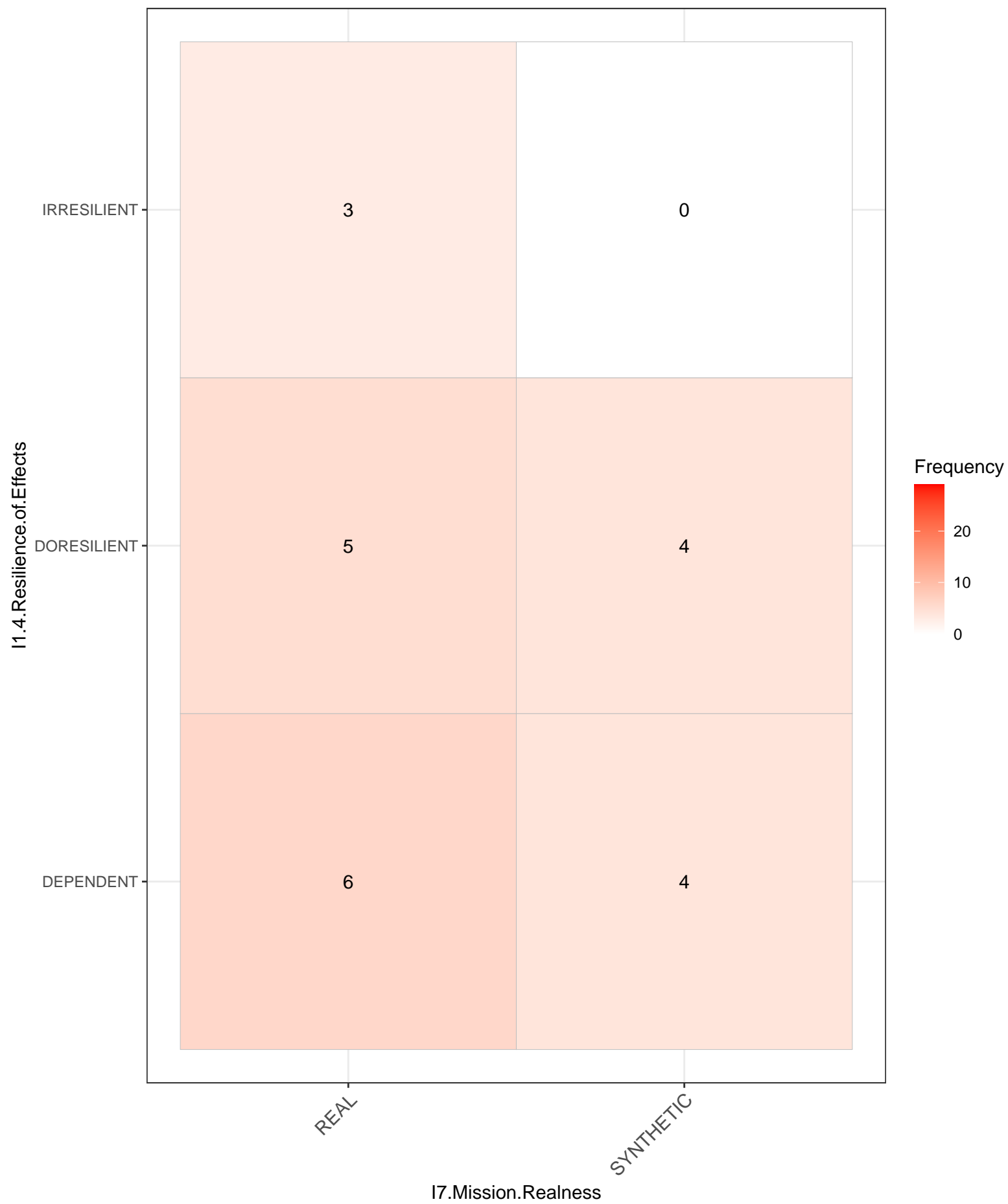
I1.4.Resilience.of.Effects_____I6.Independence

I1.4.Resilience.of.Effects



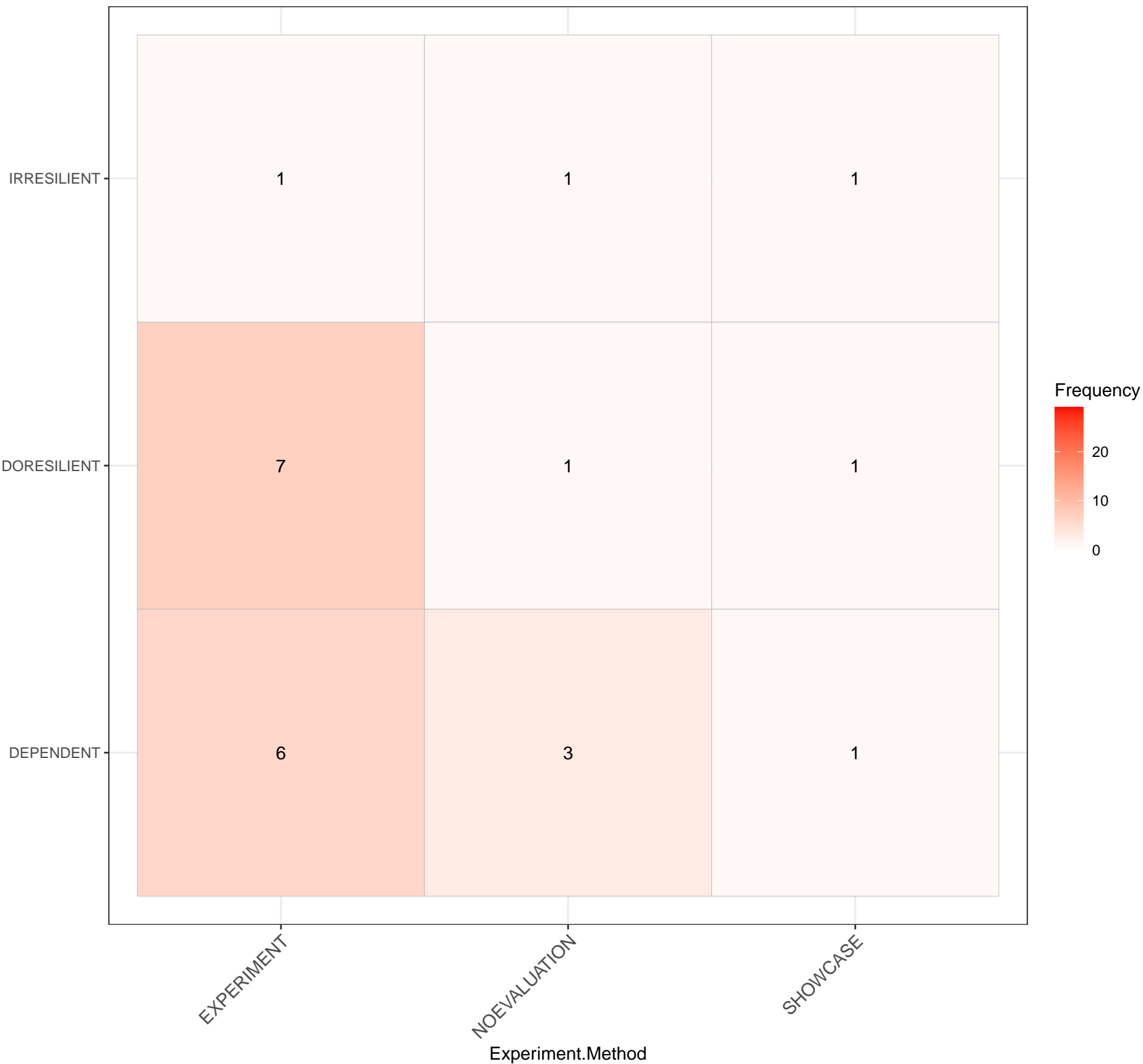


I1.4.Resilience.of.Effects_____I7.Mission.Realness

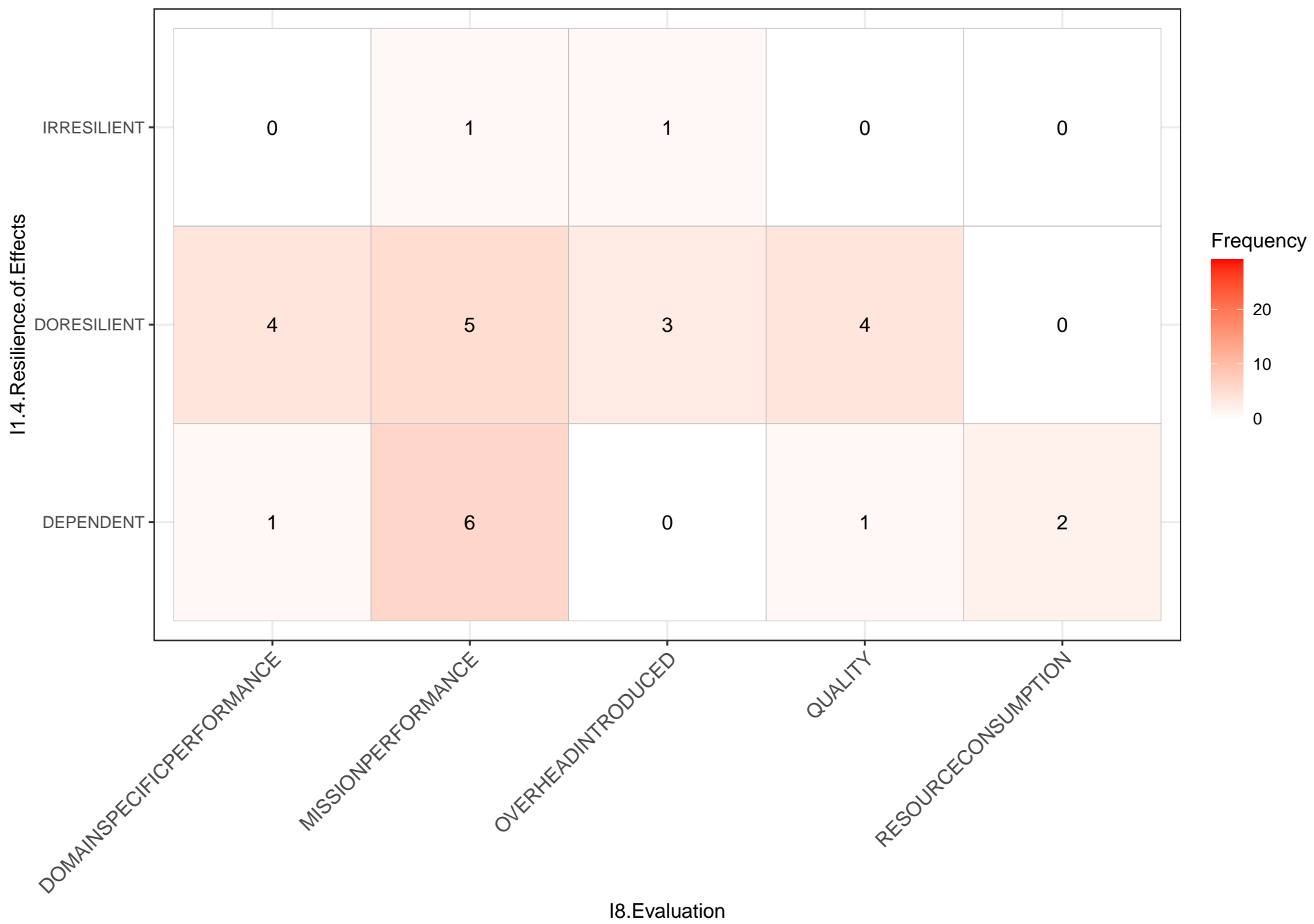


I1.4.Resilience.of.Effects_____Experiment.Method

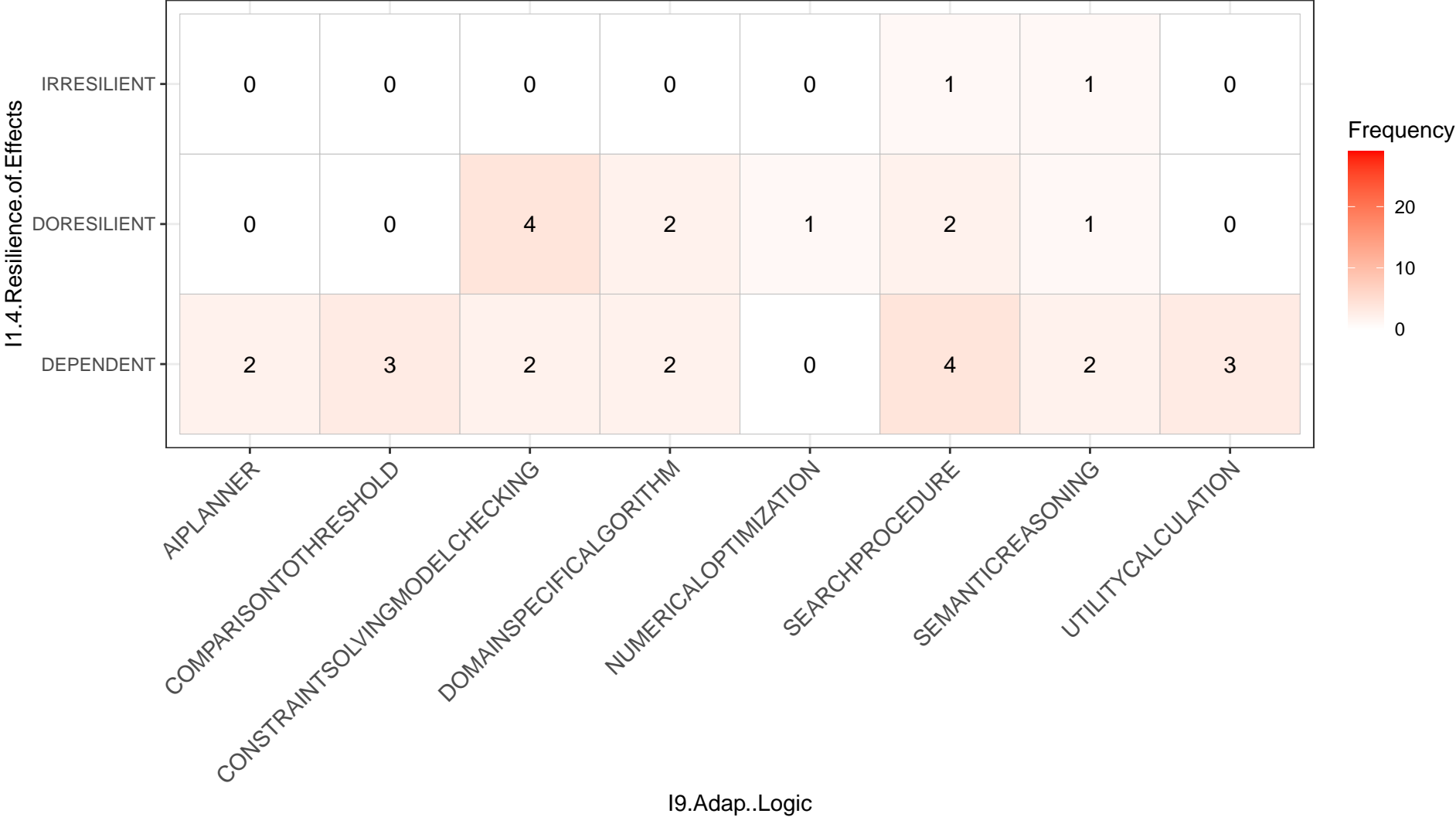
I1.4.Resilience.of.Effects



I1.4.Resilience.of.Effects_____I8.Evaluation

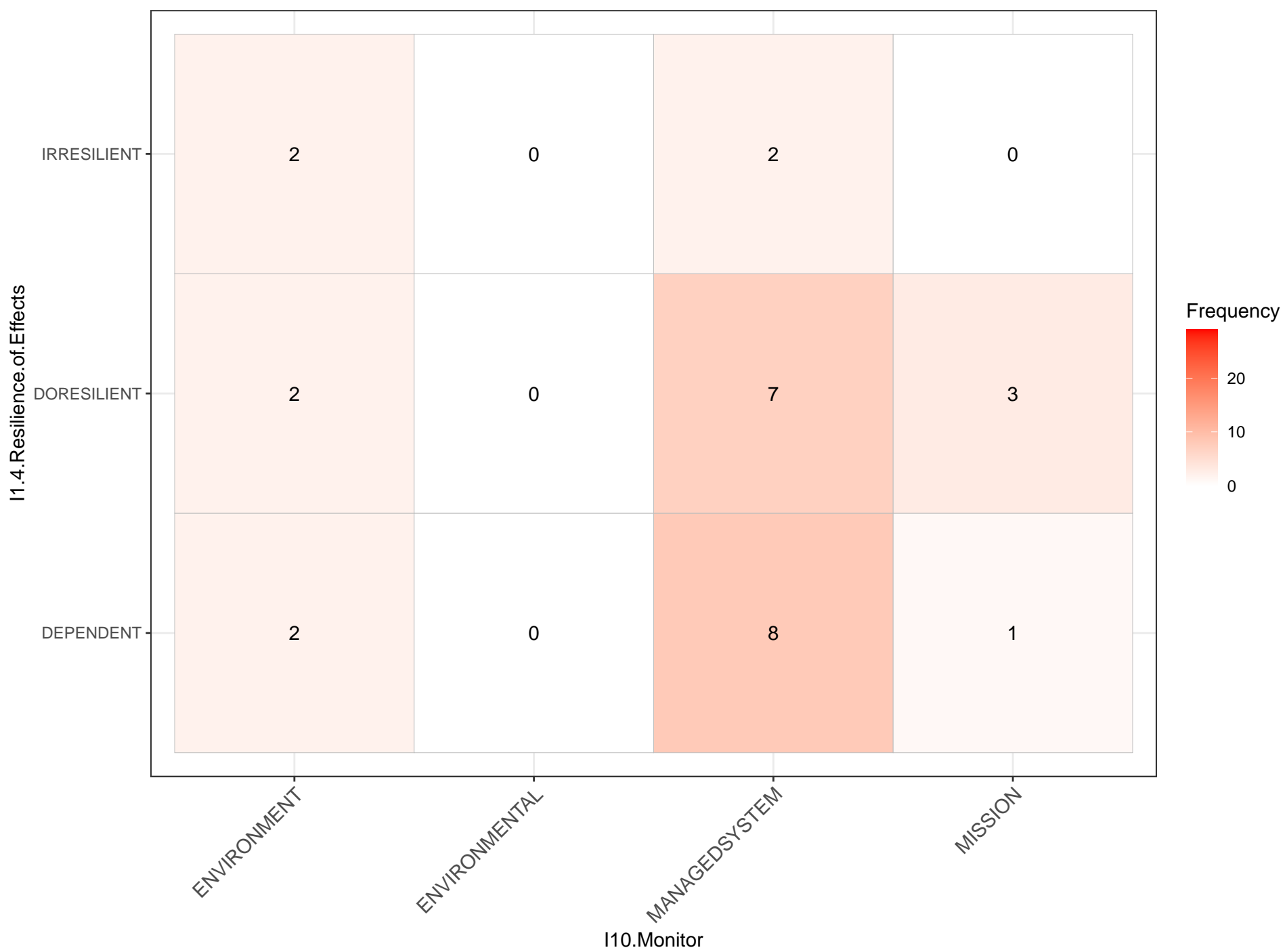


I1.4.Resilience.of.Effects_____I9.Adap..Logic

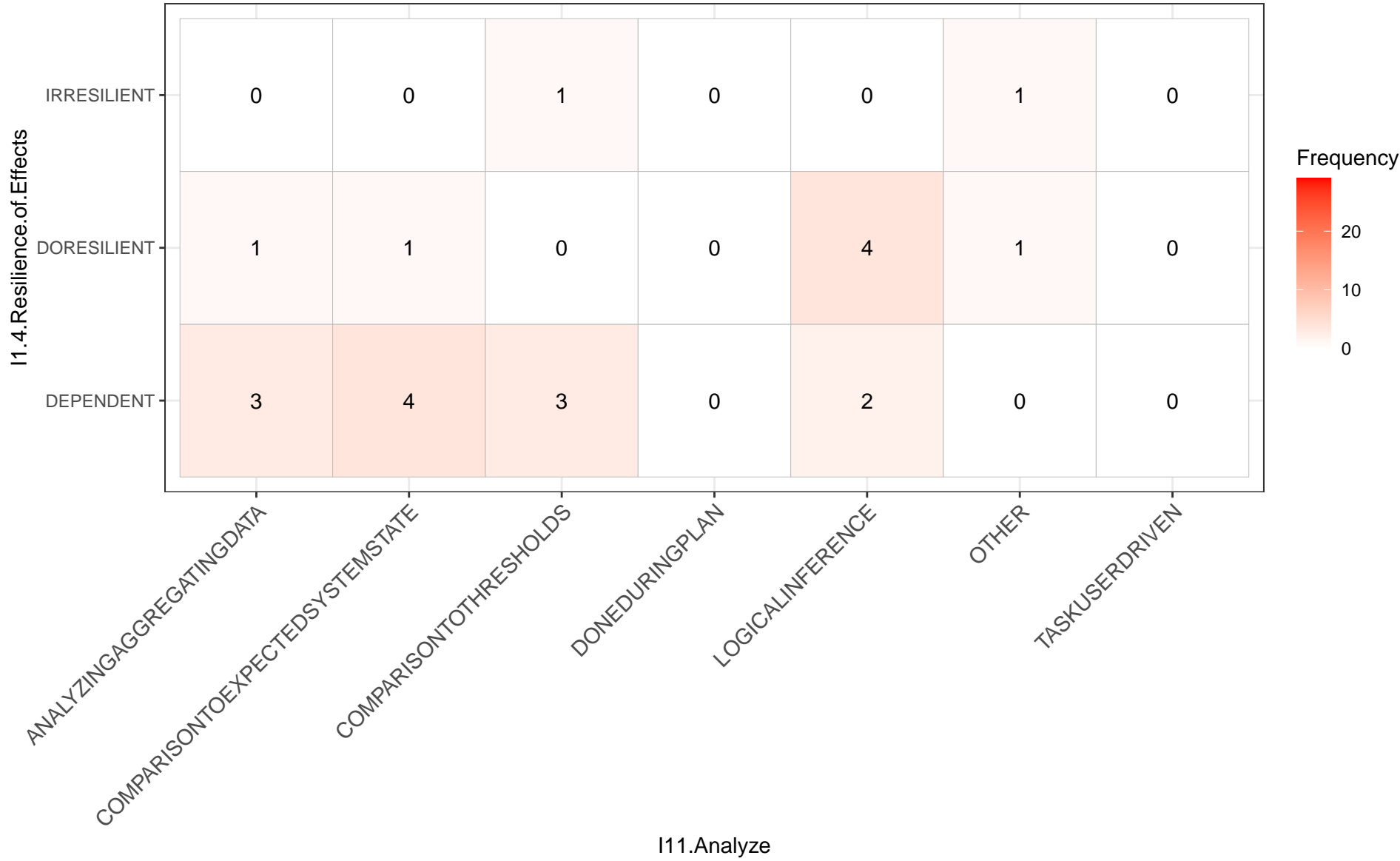


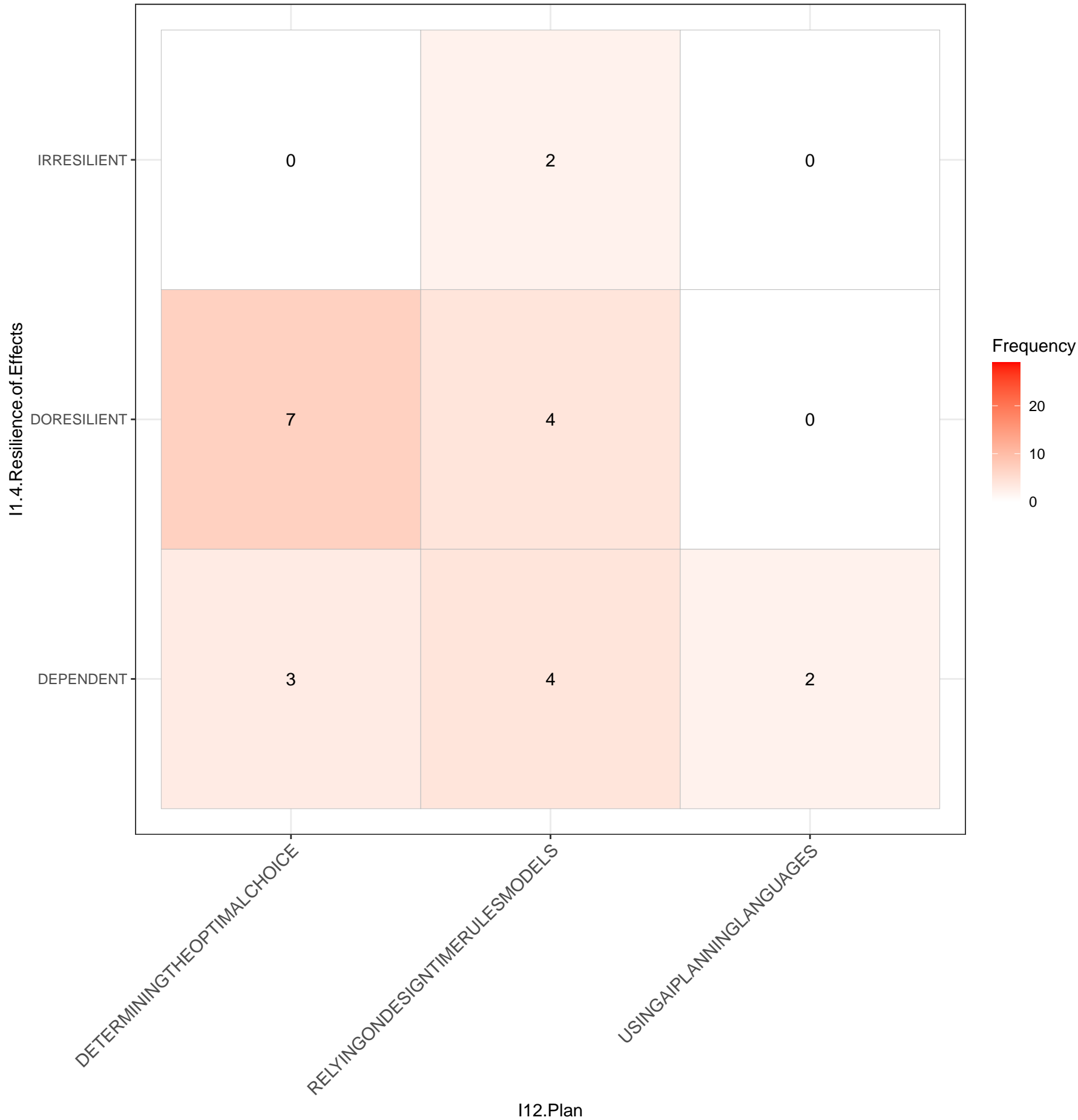
I9.Adap..Logic

I1.4.Resilience.of.Effects_____I10.Monitor

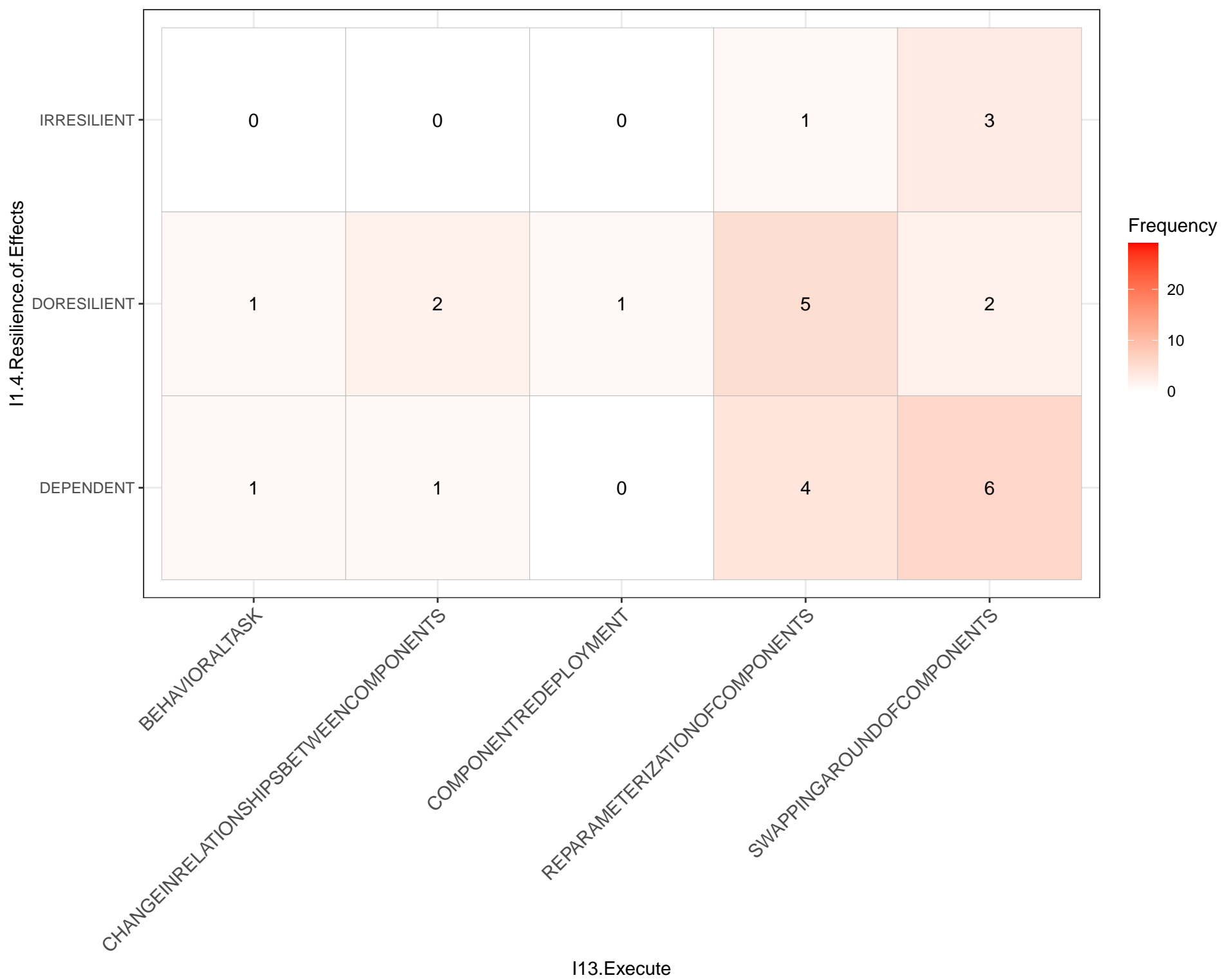


I1.4.Resilience.of.Effects_____I11.Analyze

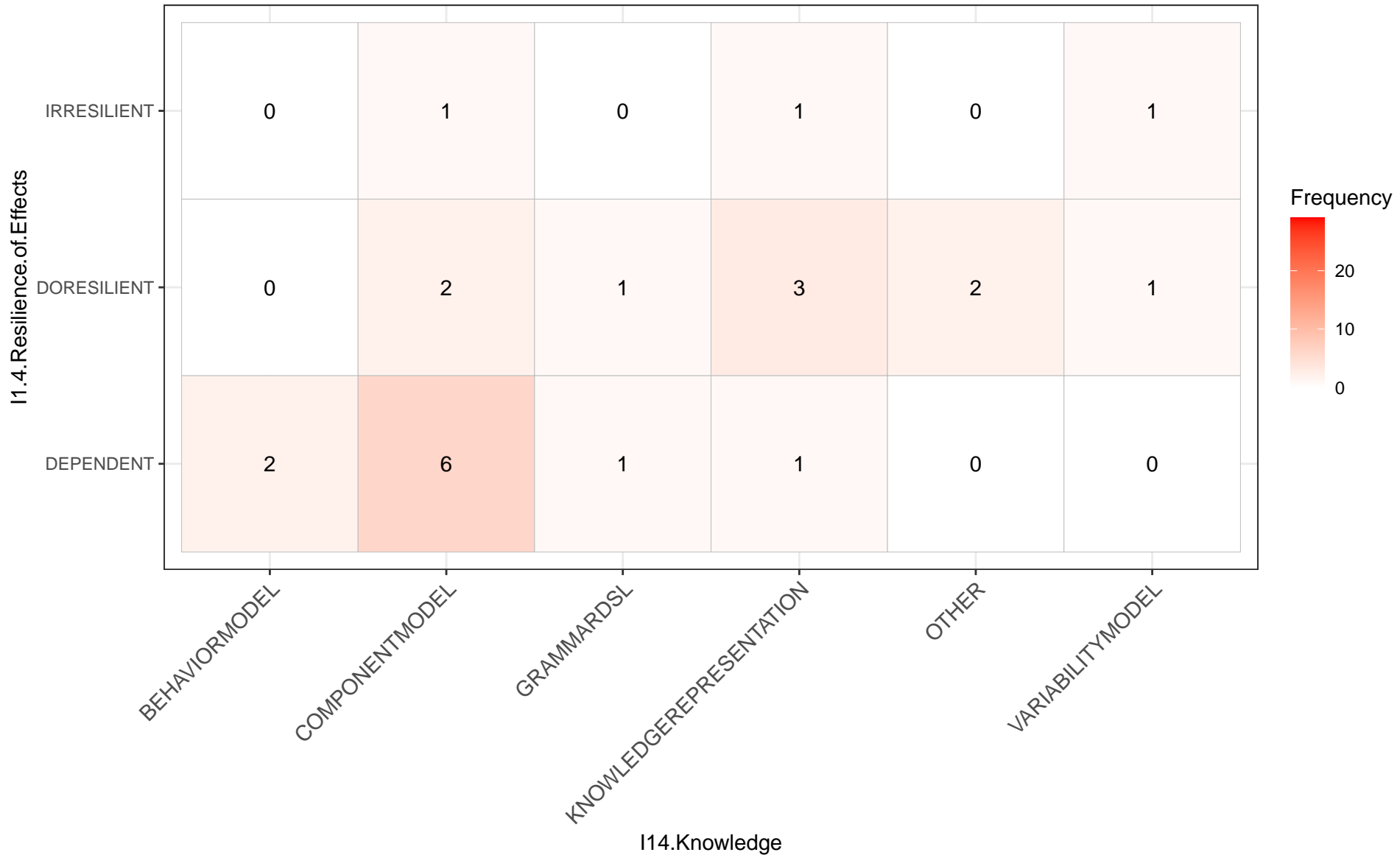


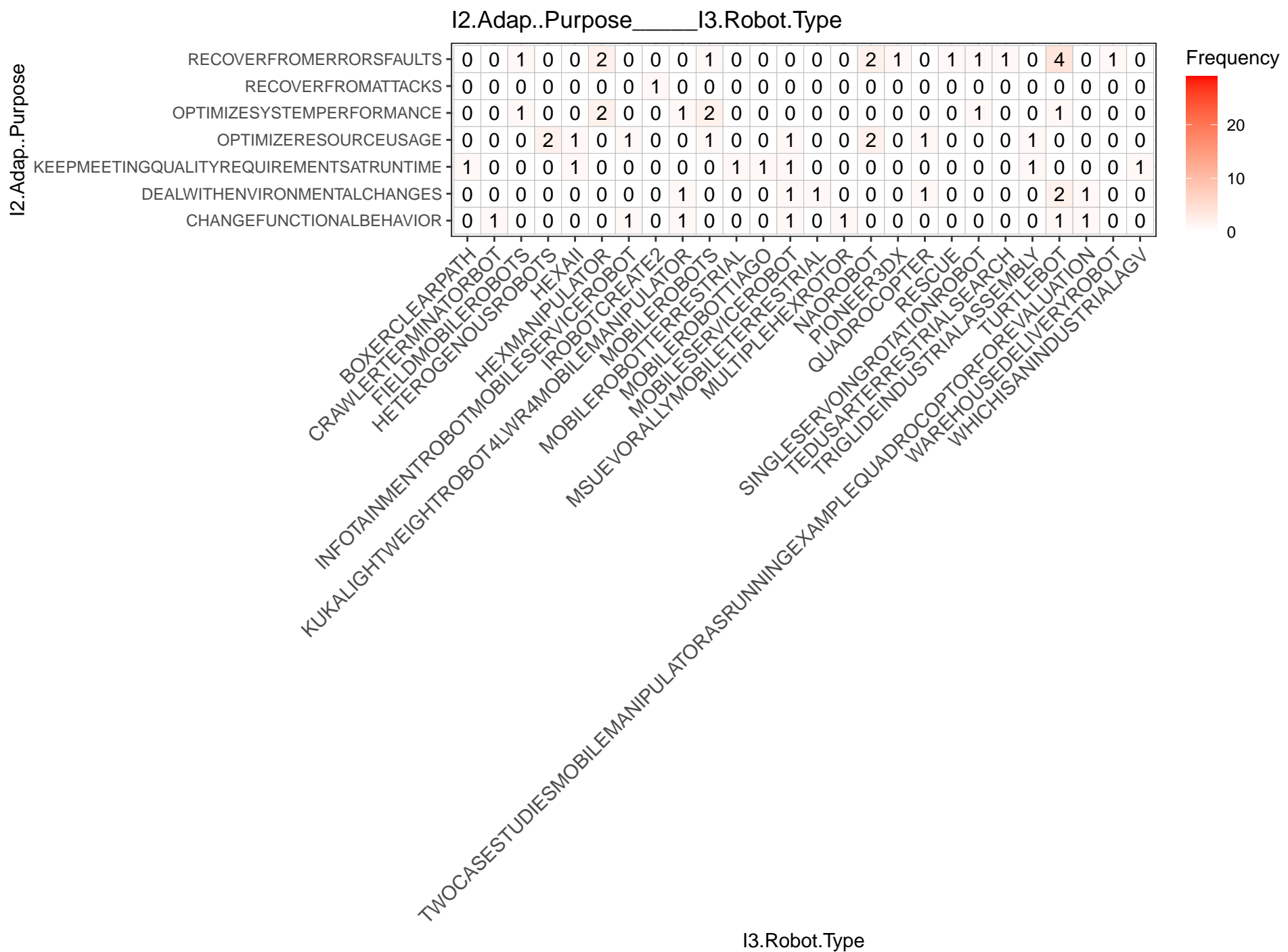


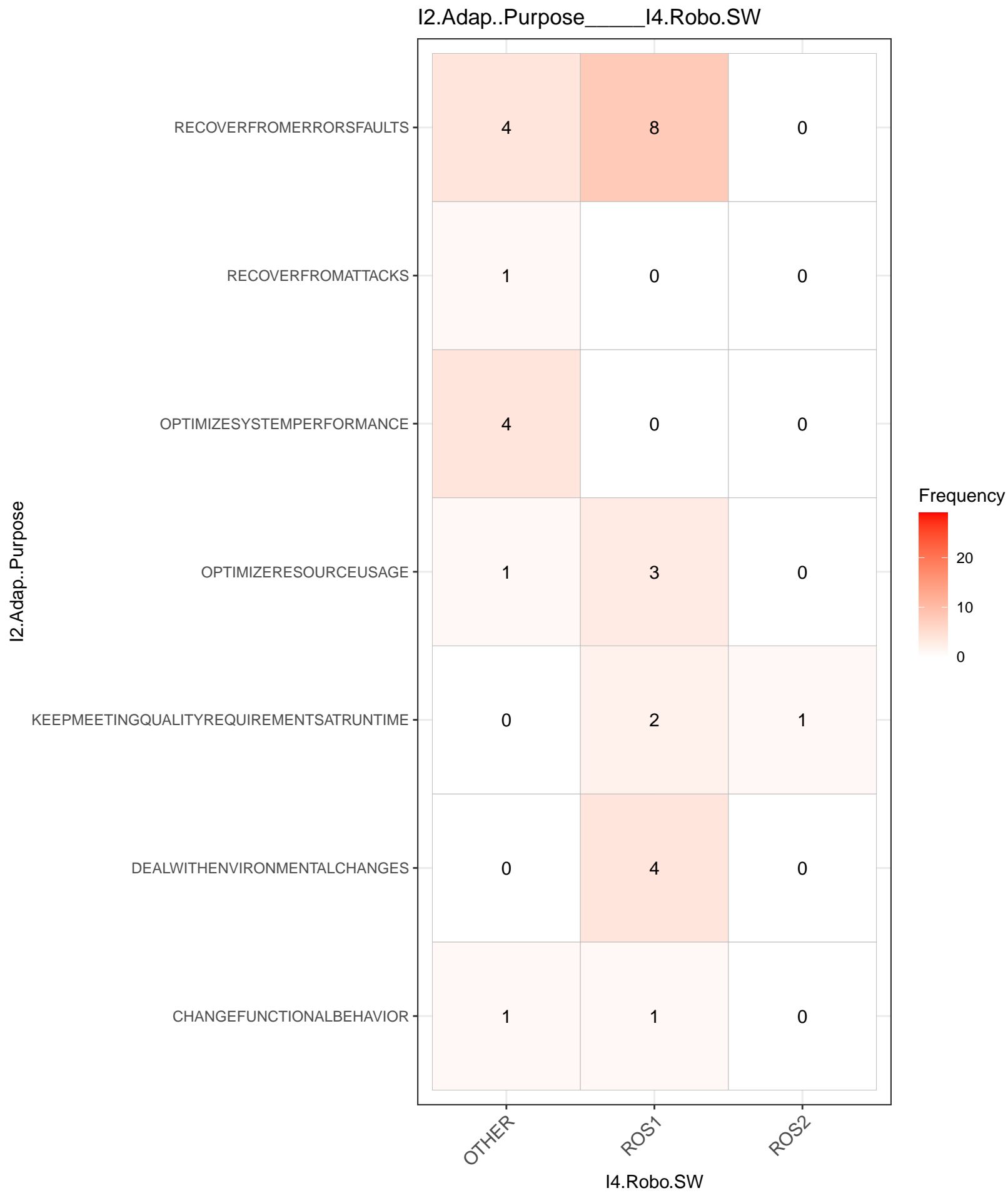
I1.4.Resilience.of.Effects_____I13.Execute



I1.4.Resilience.of.Effects_____I14.Knowledge

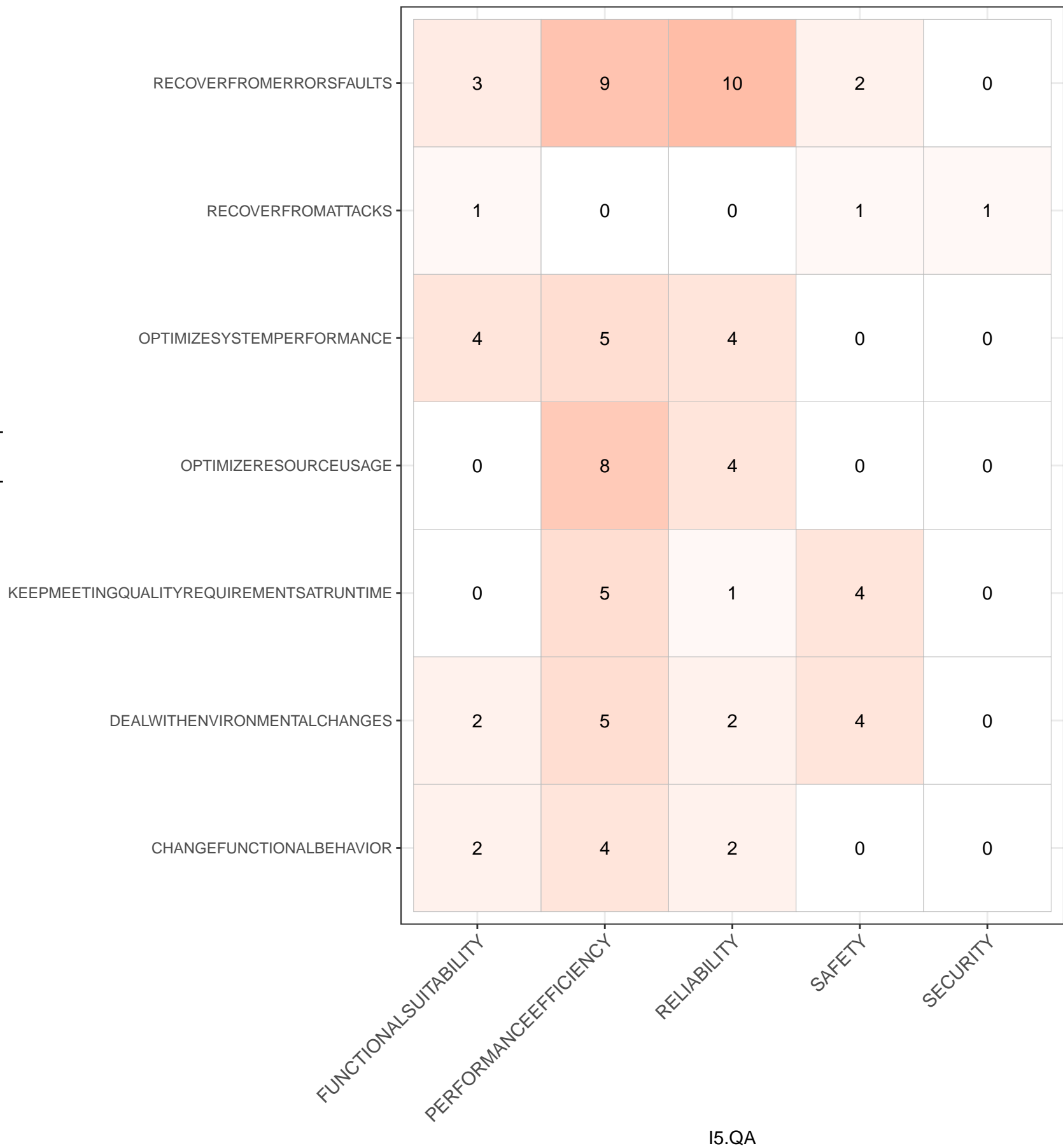


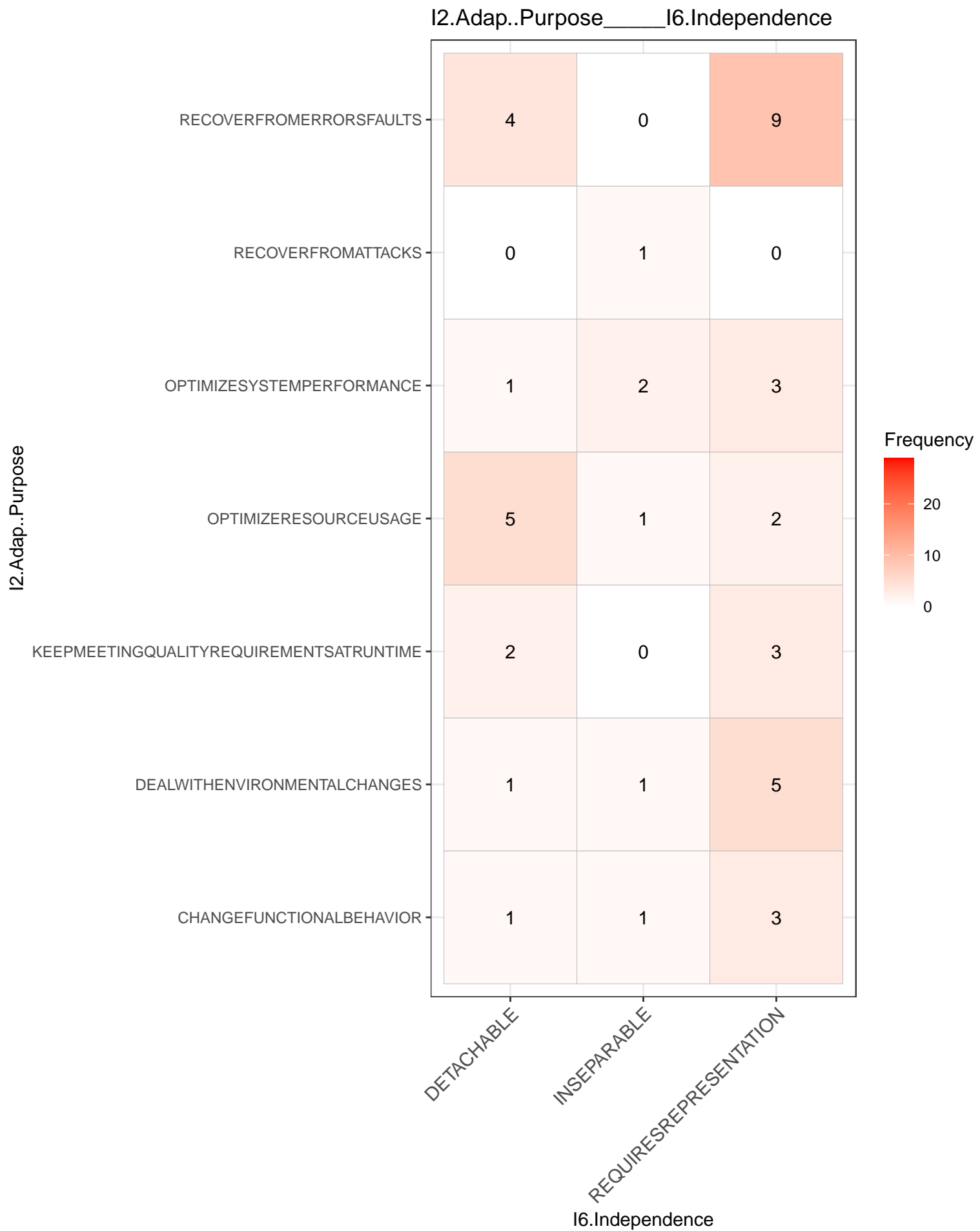


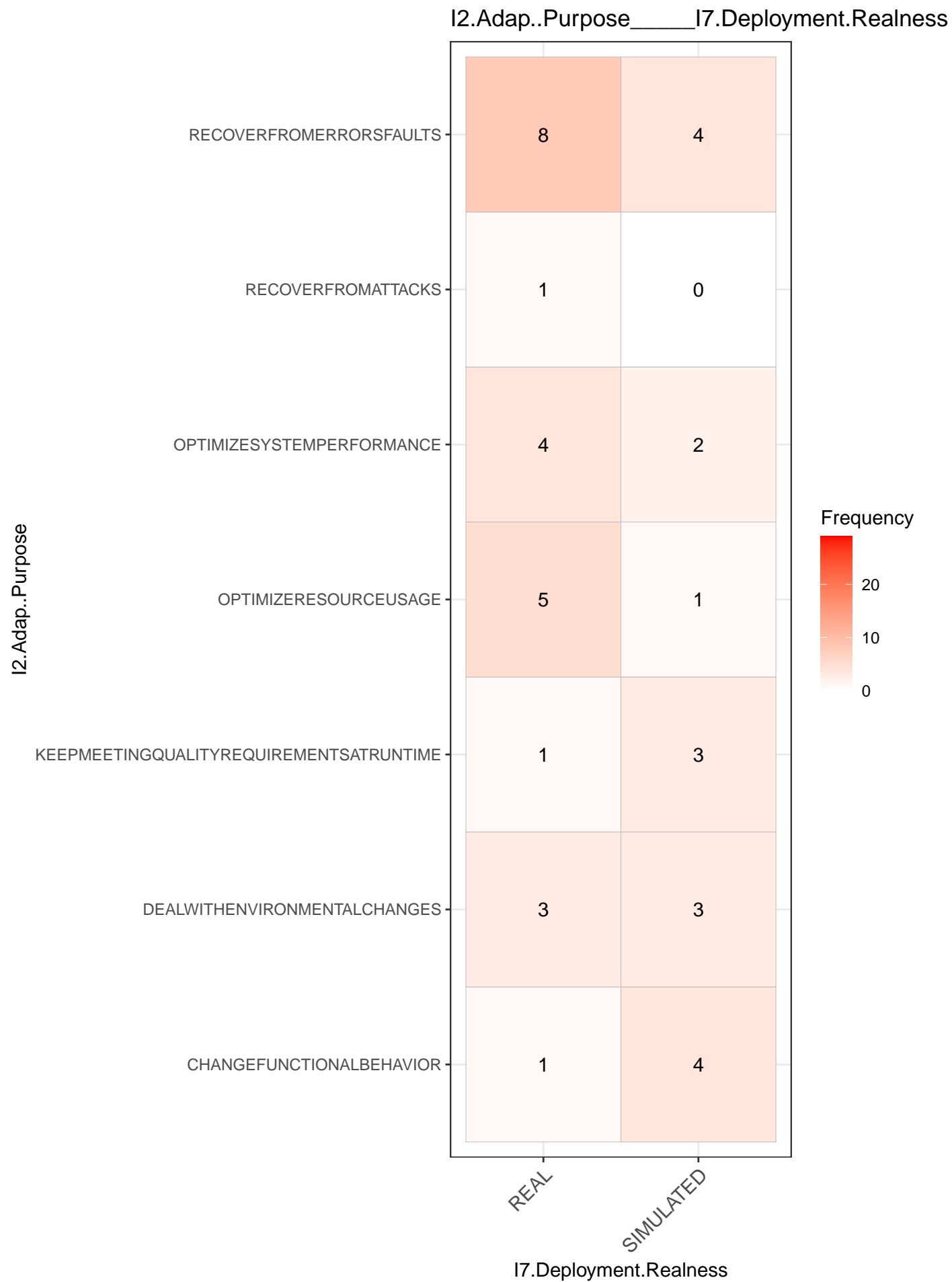


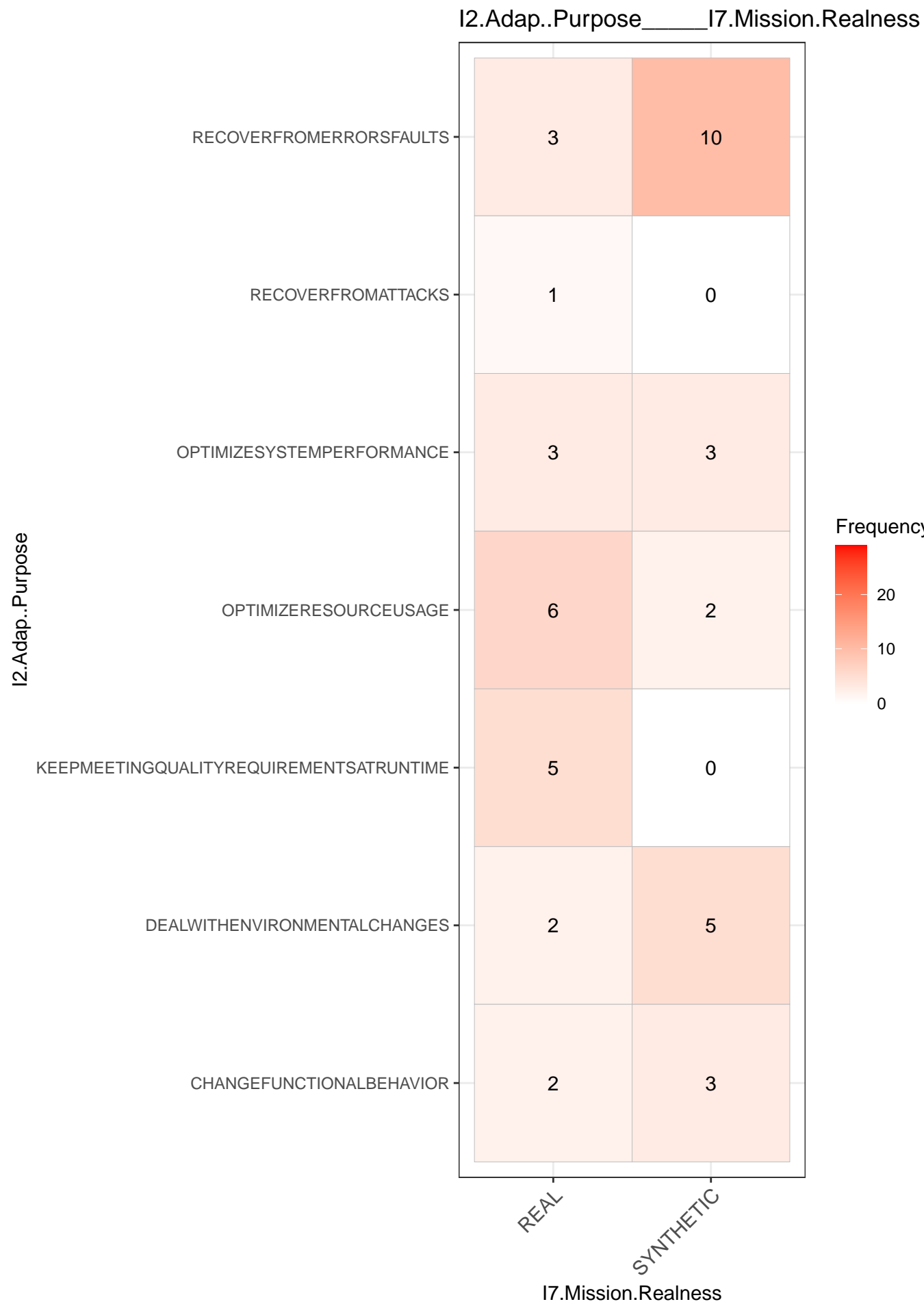
I2.Adap..Purpose_____I5.QA

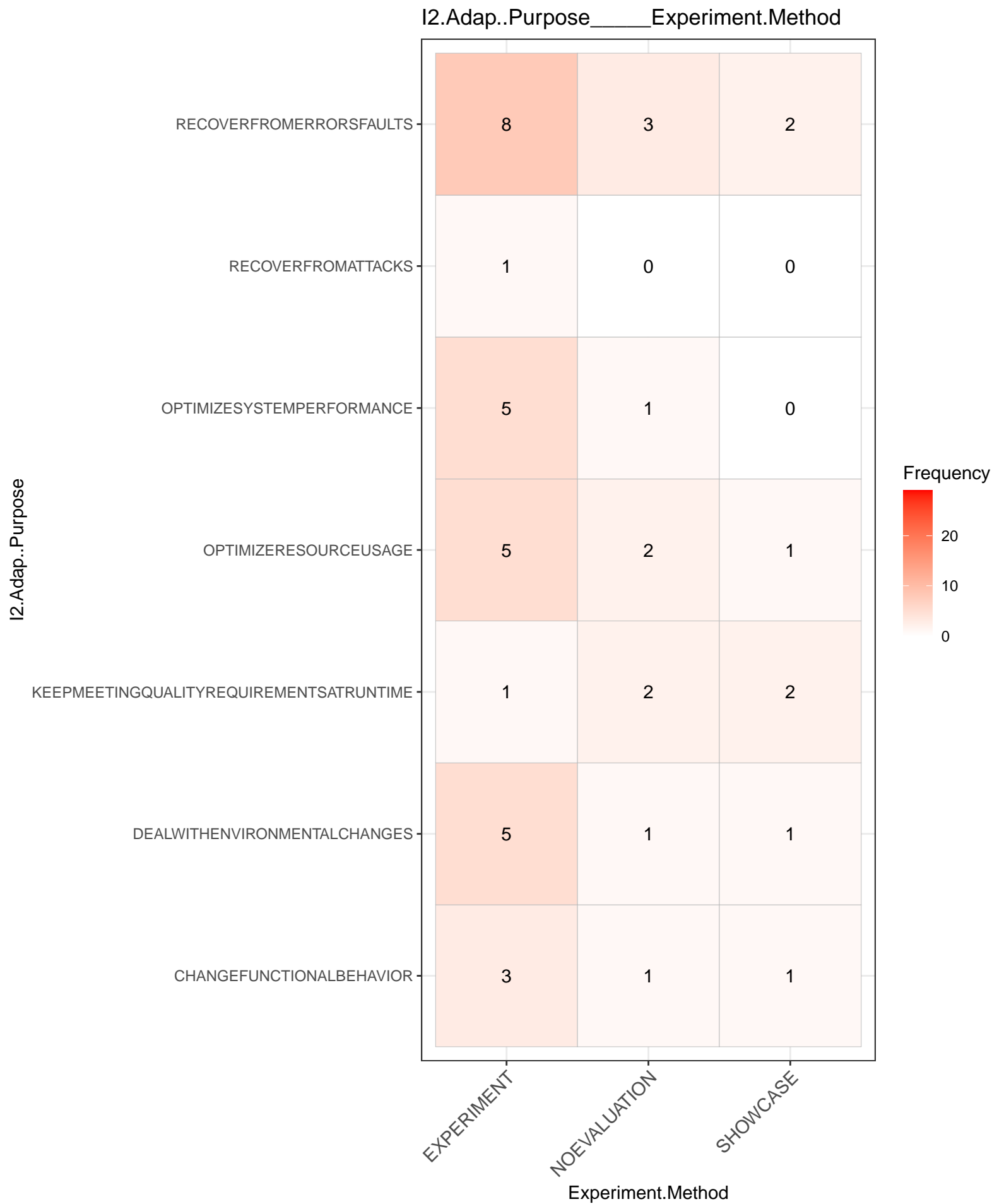
I2.Adap..Purpose

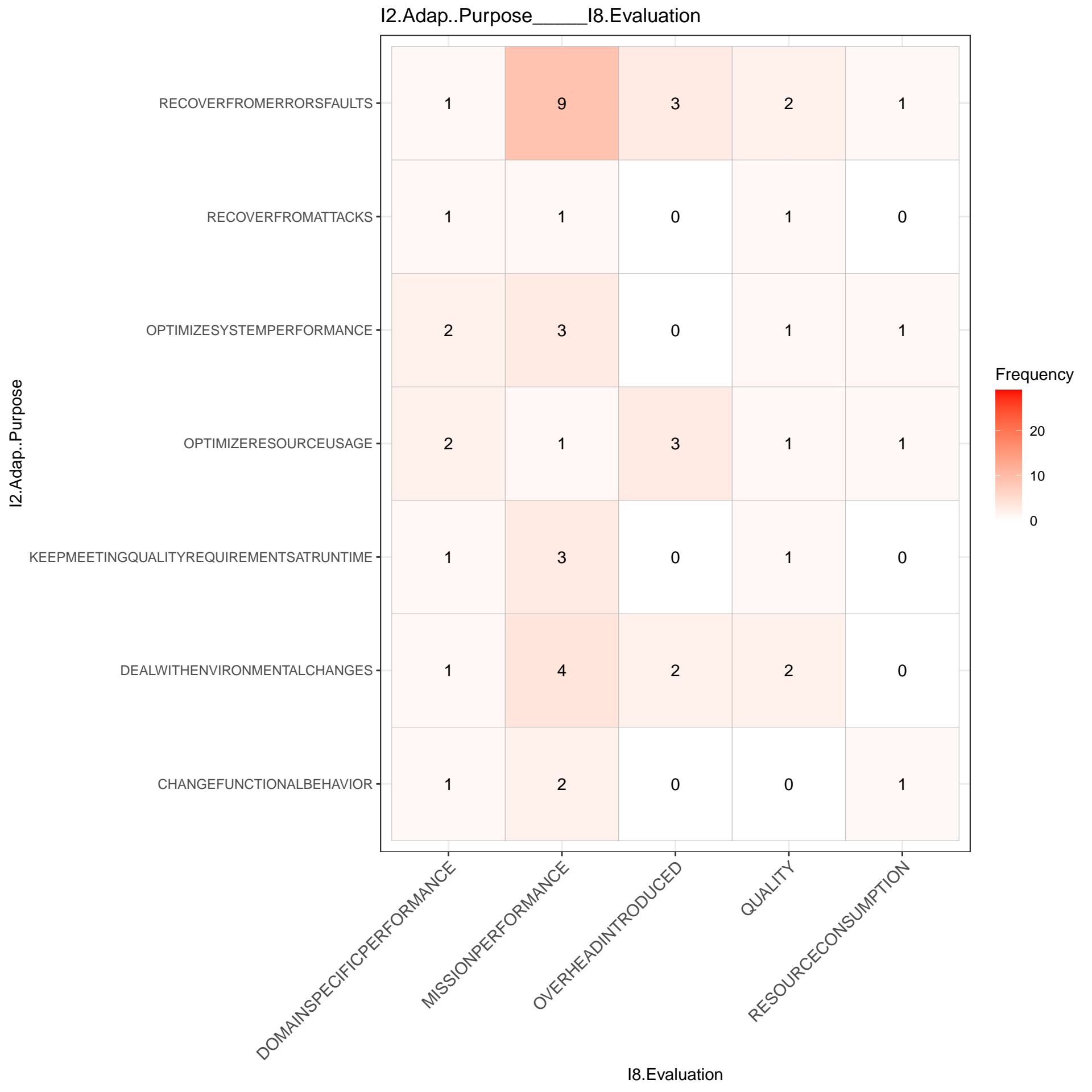


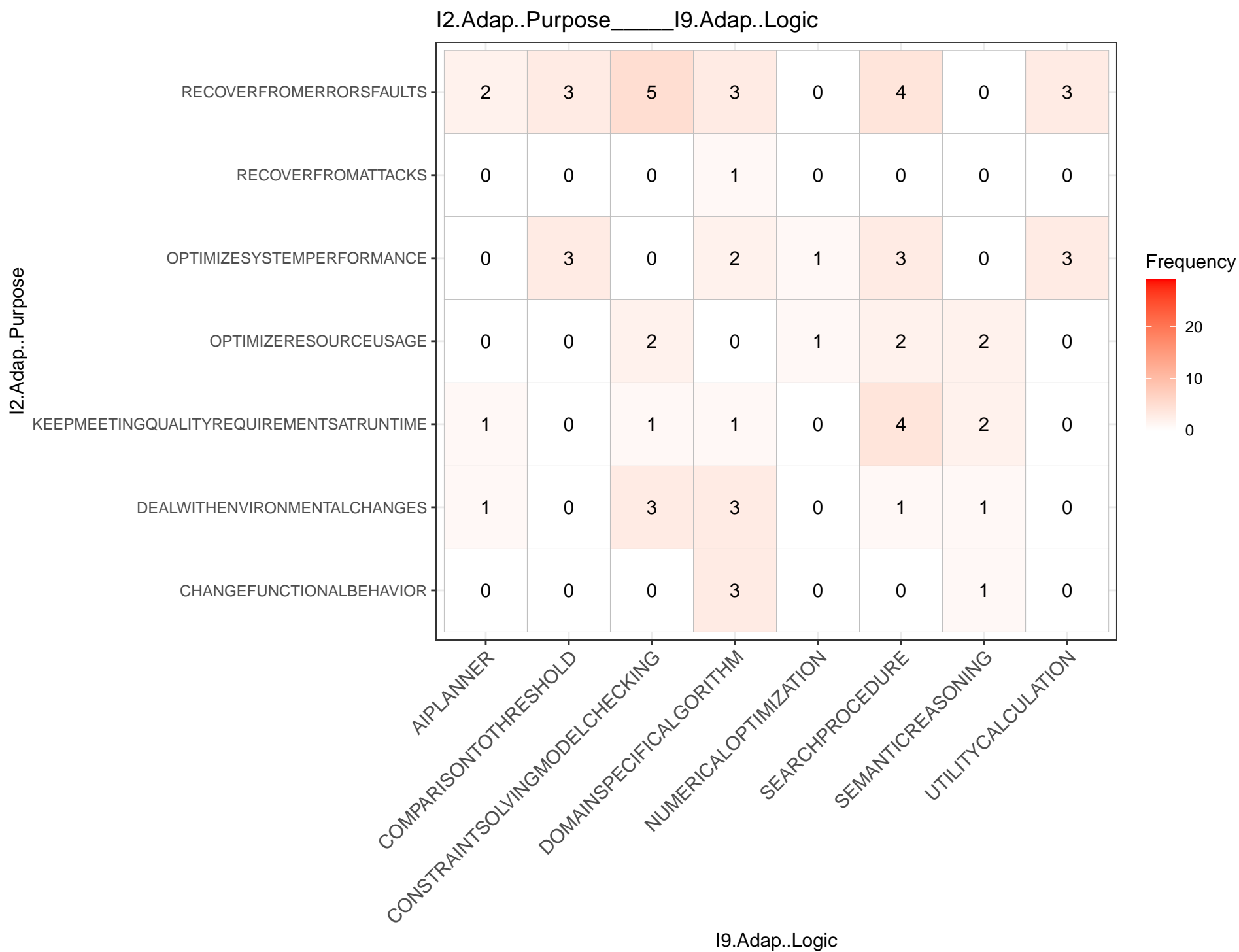






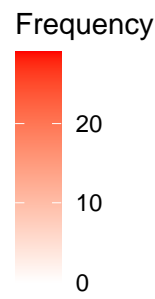
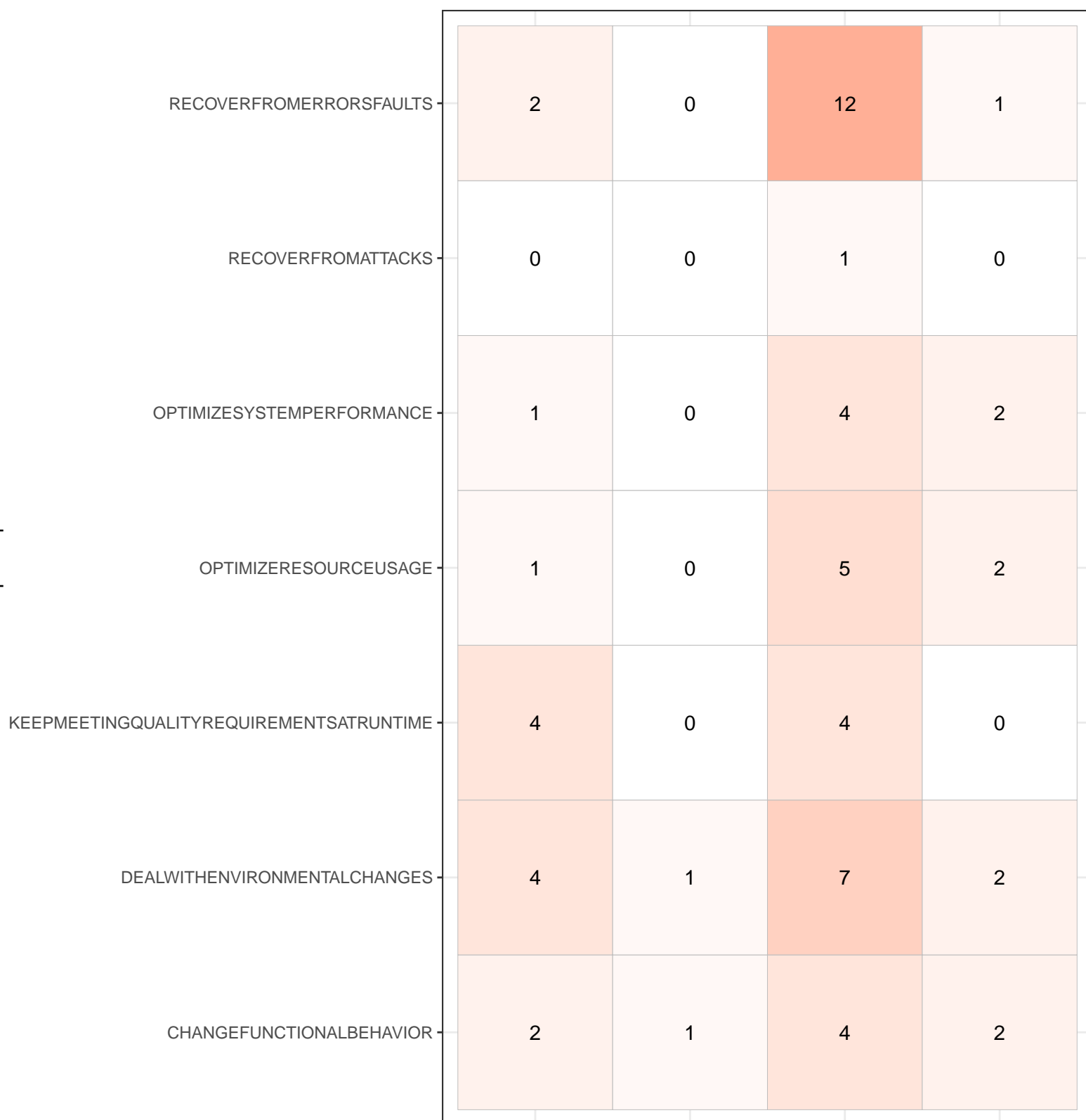






I2.Adap..Purpose_____I10.Monitor

I2.Adap..Purpose



ENVIRONMENT

ENVIRONMENTAL

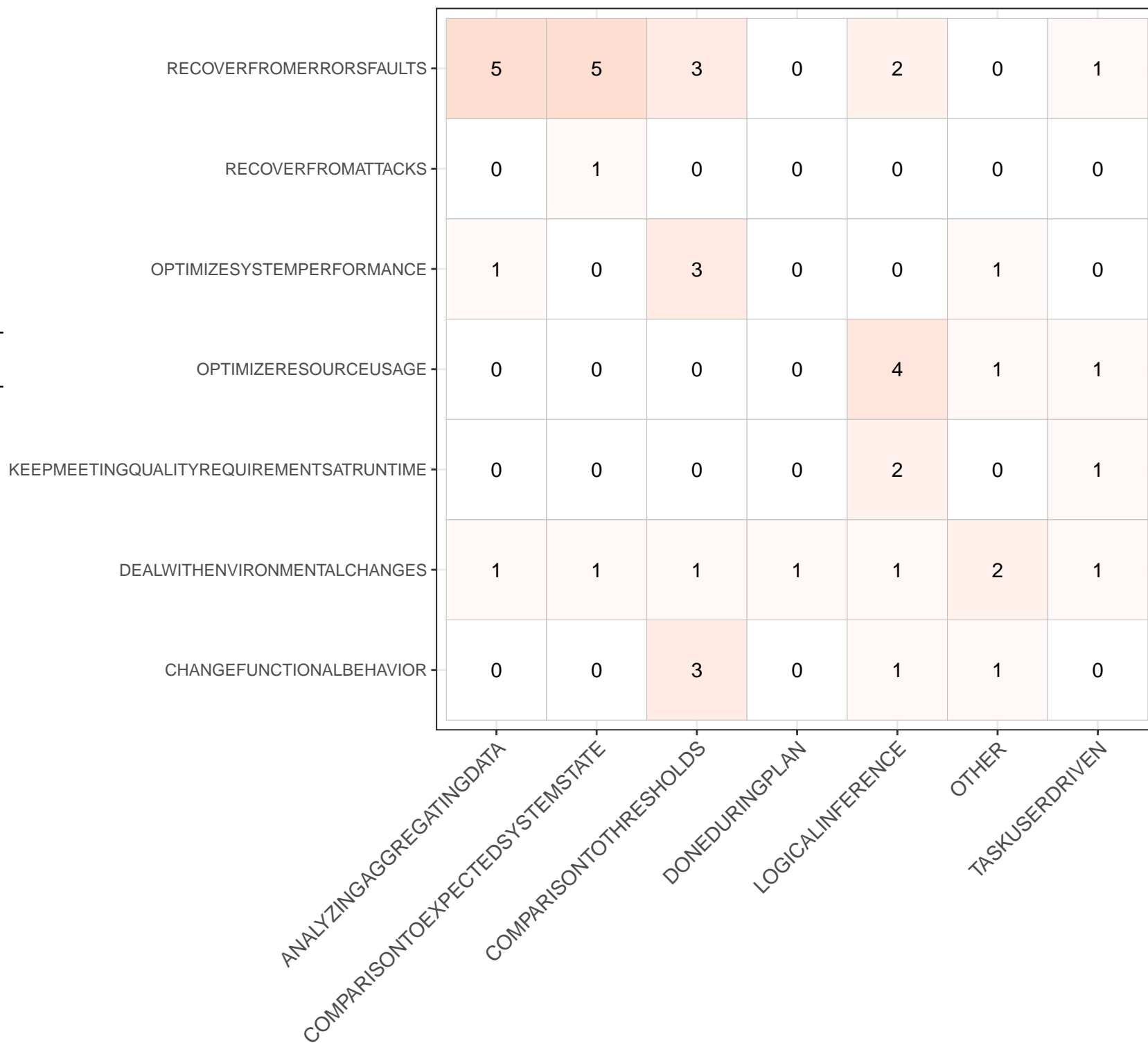
MANAGEDSYSTEM

MISSION

I10.Monitor

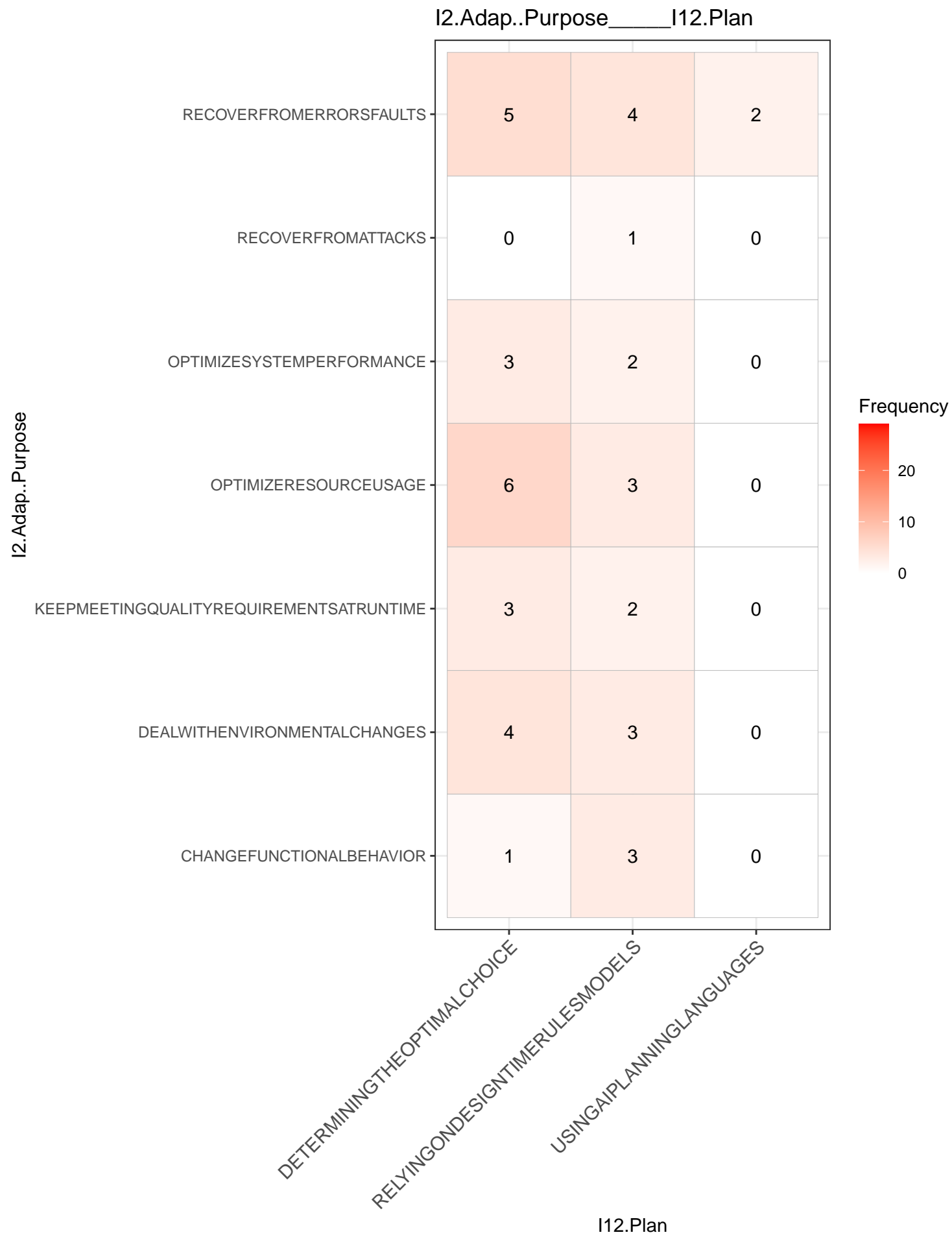
I2.Adap..Purpose

I2.Adap..Purpose____I11.Analyze



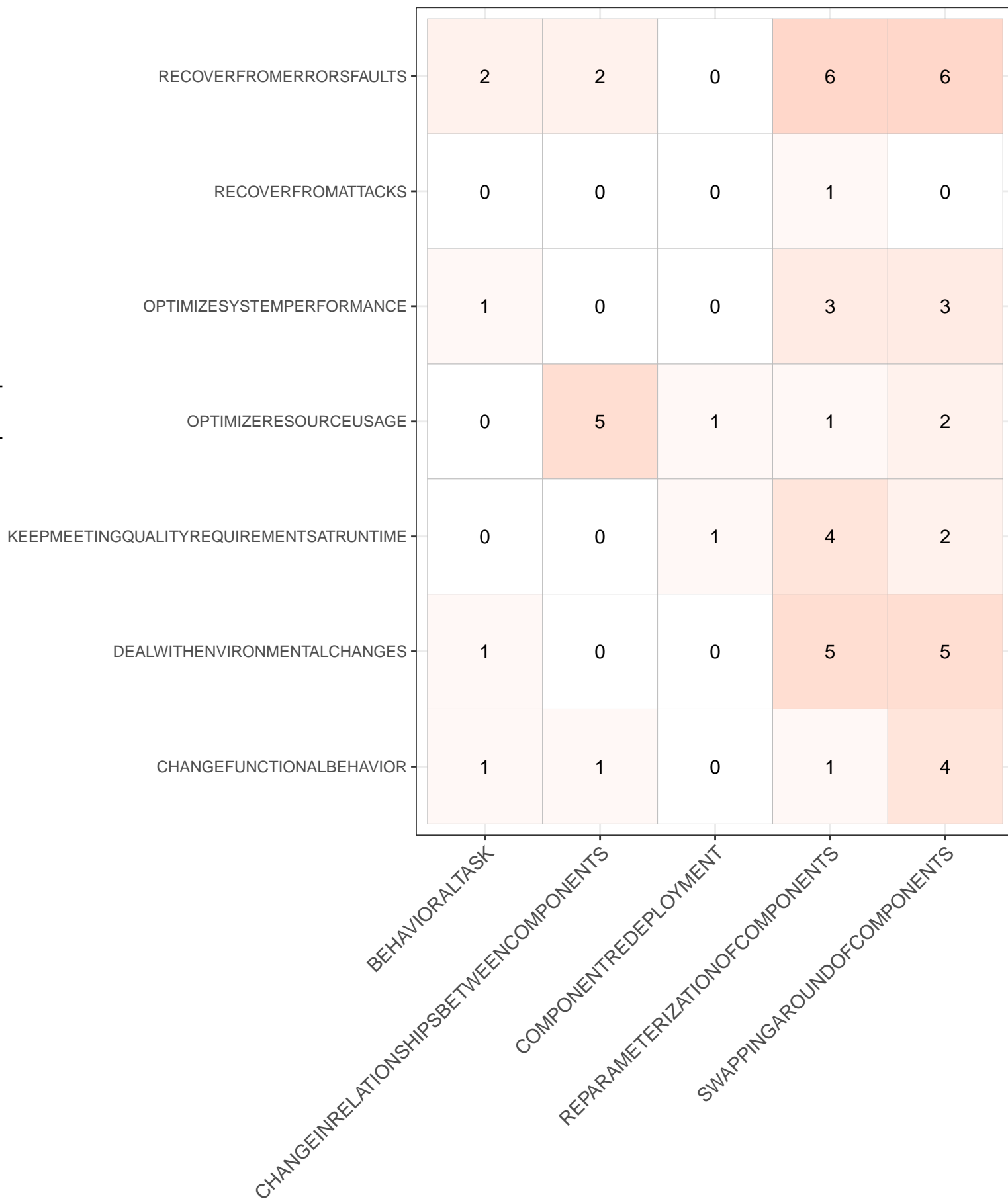
Frequency



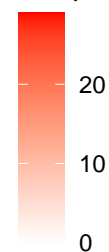


I2.Adap..PurposeI13.Execute

I2.Adap..Purpose



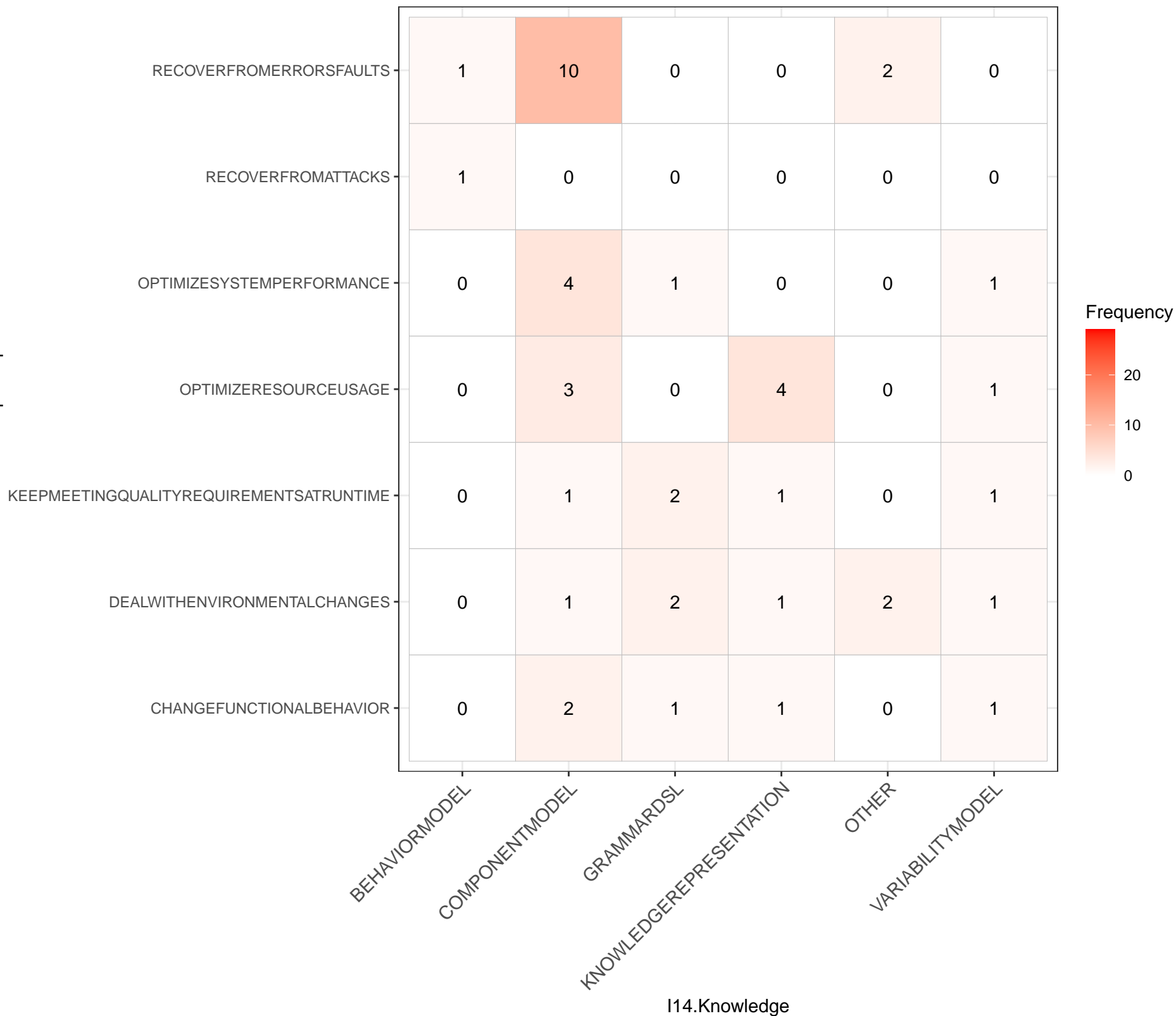
Frequency



I13.Execute

I2.Adap..Purpose

I2.Adap..Purpose_____I14.Knowledge

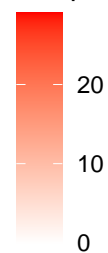


I3.Robot.TypeI4.Robo.SW

I3.Robot.Type

WHICHISANINDUSTRIALAGV	0	1	0
WAREHOUSEDELIVERYROBOT	0	1	0
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	0	1	0
TURTLEBOT	0	3	0
TRIGLIDEINDUSTRIALASSEMBLY	0	0	0
TEDUSARTERRESTRIALSEARCH	0	1	0
SINGLESERVOINGROTATIONROBOT	1	0	0
RESCUE	0	1	0
QUADROCOPTER	0	0	0
PIONEER3DX	0	1	0
NAOROBOT	0	2	0
MULTIPLEHEXROTOR	1	0	0
MSUEVORALLYMOBILETERRESTRIAL	0	1	0
MOBILESERVICEROBOT	0	0	0
MOBILEROBOTTIAGO	0	0	1
MOBILEROBOTTERRESTRIAL	0	1	0
MOBILEROBOTS	2	0	0
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	0	0	0
IROBOTCREATE2	1	0	0
INFOTAINMENTROBOTMOBILESERVICEROBOT	0	0	0
HEXMANIPULATOR	2	0	0
HEXAII	0	0	0
HETEROGENOUSROBOTS	0	1	0
FIELDMOBILEROBOTS	1	0	0
CRAWLERTERMINATORBOT	1	0	0
BOXERCLEARPATH	0	1	0

Frequency



OTHER
ROS1
ROS2

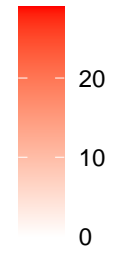
I4.Robo.SW

I3.Robot.Type

I3.Robot.TypeI5.QA

WHICHISANINDUSTRIALAGV	0	1	0	1	0
WAREHOUSEDELIVERYROBOT	0	0	1	0	0
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	0	1	1	0	0
TURTLEBOT	0	3	2	2	0
TRIGLIDEINDUSTRIALASSEMBLY	0	1	1	0	0
TEDUSARTERRESTRIALSEARCH	0	0	1	0	0
SINGLESERVOINGROTATIONROBOT	1	1	1	0	0
RESCUE	0	0	1	0	0
QUADROCOPTER	0	1	0	0	0
PIONEER3DX	0	0	1	0	0
NAOROBOT	0	2	1	0	0
MULTIPLEHEXROTOR	1	1	0	0	0
MSUEVORALLYMOBILETERRESTRIAL	1	0	1	1	0
MOBILESERVICEROBOT	0	2	0	1	0
MOBILEROBOTTIAGO	0	1	0	1	0
MOBILEROBOTTERRESTRIAL	0	1	0	1	0
MOBILEROBOTS	1	2	1	0	0
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	1	0	0	0	0
IROBOTCREATE2	1	0	0	1	1
INFOTAINMENTROBOTMOBILESERVICEROBOT	0	1	0	0	0
HEXMANIPULATOR	2	2	2	0	0
HEXAII	0	1	1	0	0
HETEROGENOUSROBOTS	0	2	2	0	0
FIELDMOBILEROBOTS	1	1	1	0	0
CRAWLERTERMINATORBOT	1	1	0	0	0
BOXERCLEARPATH	0	1	0	1	0

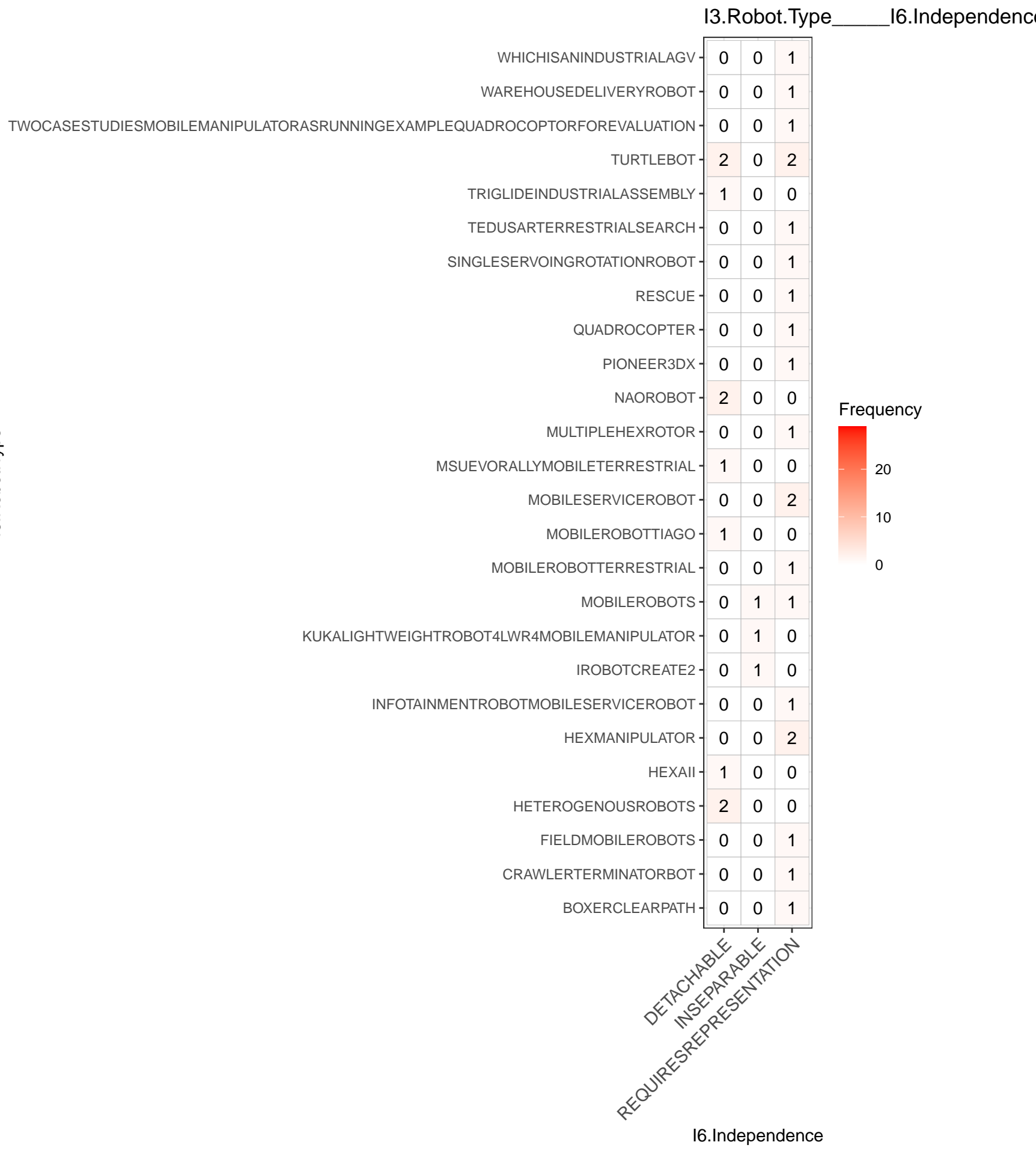
Frequency



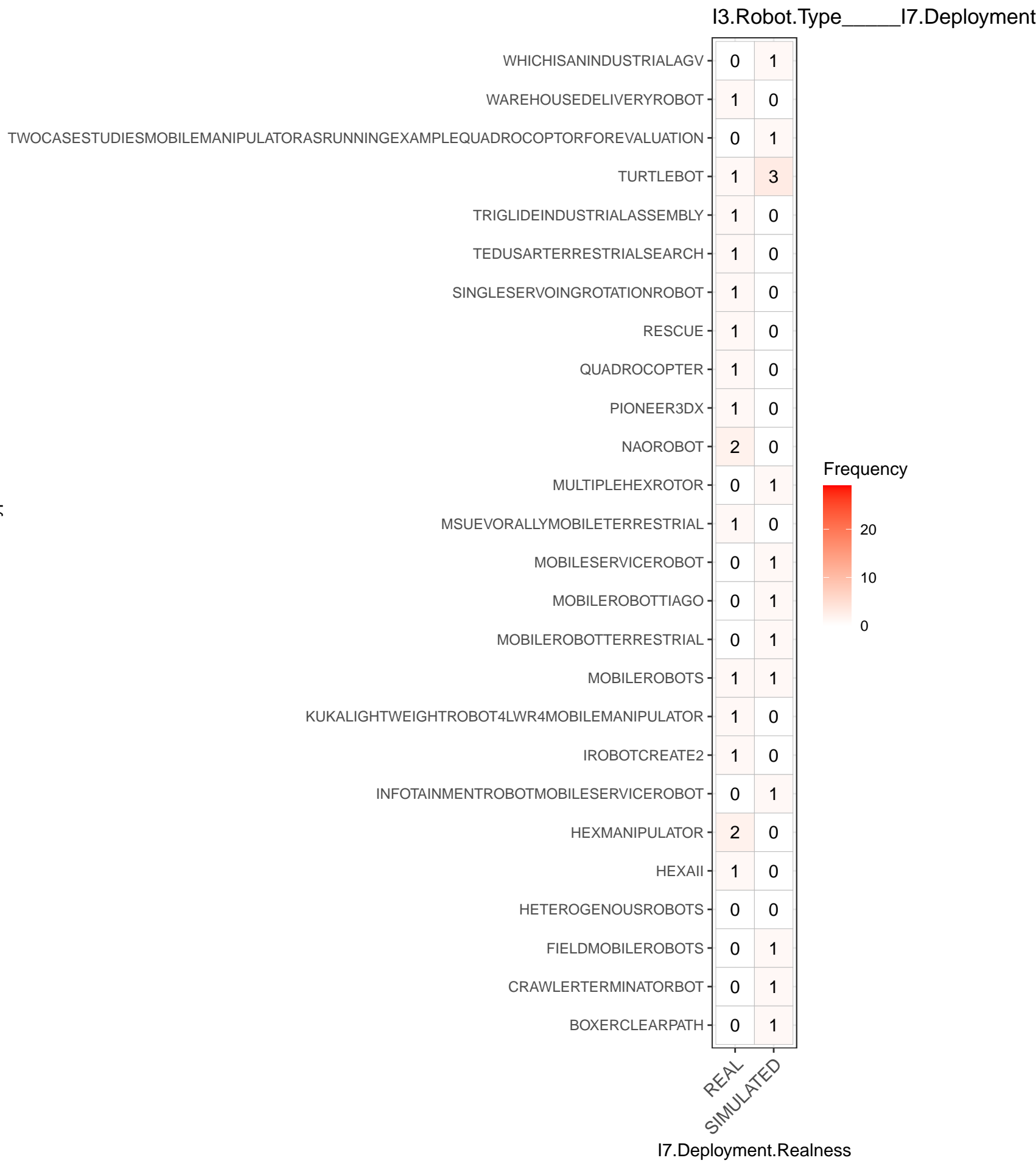
FUNCTIONALSUITABILITY
PERFORMANCEEFFICIENCY
RELIABILITY
SAFETY
SECURITY

I5.QA

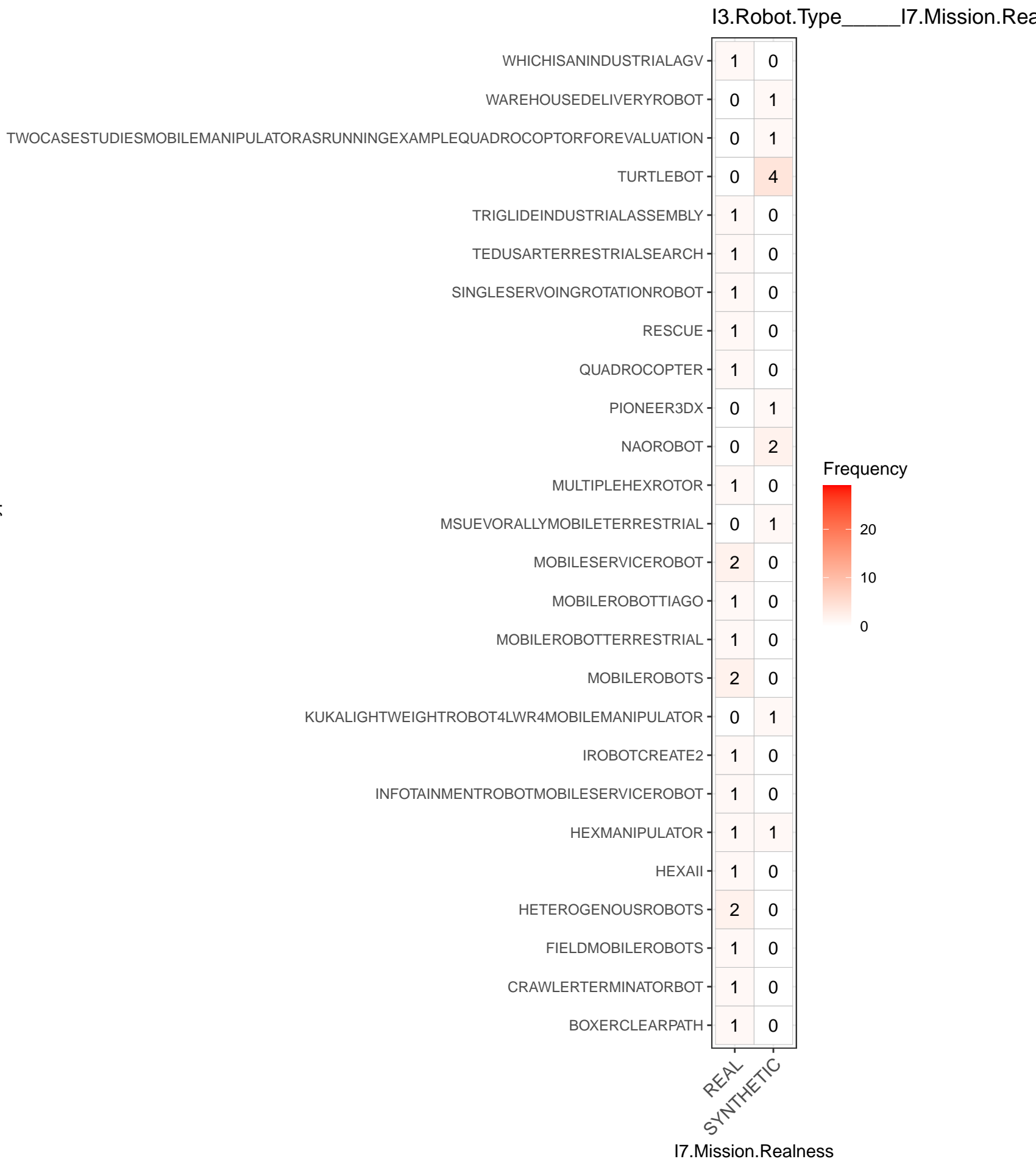
I3.Robot.Type



I3.Robot.Type



I3.Robot.Type



I3.Robot.Type

I3.Robot.TypeExperiment.Method

TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION

KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR

INFOTAINMENTROBOTMOBILESERVICEROBOT

CRAWLERTERMINATORBOT

BOXERCLEARPATH

HETEROGENOUSROBOTS

FIELDMOBILEROBOTS

EXPERIMENT
NOEVALUATION
SHOWCASE

Experiment.Method

SINGLESERVOINGROTATIONROBOT

QUADROCOPTER

PIONEER3DX

NAOROBOT

MULTIPLEHEXROTOR

MSUEVORALLYMOBILETERRESTRIAL

MOBILESERVICEROBOT

MOBILEROBOTTIAGO

MOBILEROBOTTERRESTRIAL

MOBILEROBOTS

IROBOTCREATE2

HEXMANIPULATOR

HEXAII

TURTLEBOT

TRIGLIDEINDUSTRIALASSEMBLY

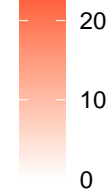
TEDUSARTERRESTRIALSEARCH

RESCUE

WAREHOUSEDELIVERYROBOT

WHICHISANINDUSTRIALAGV

Frequency

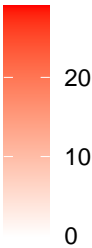


I3.Robot.Type

I3.Robot.TypeI8.Evaluation

WHICHISANINDUSTRIALAGV	0	1	0	1	0
WAREHOUSEDELIVERYROBOT	0	1	0	0	0
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	0	1	0	0	0
TURTLEBOT	1	4	2	2	0
TRIGLIDEINDUSTRIALASSEMBLY	1	1	0	0	0
TEDUSARTERRESTRIALSEARCH	0	1	0	0	0
SINGLESERVOINGROTATIONROBOT	0	1	0	0	1
RESCUE	0	1	0	0	0
QUADROCOPTER	0	0	1	0	0
PIONEER3DX	0	1	0	0	0
NAOROBOT	0	0	1	0	0
MULTIPLEHEXROTOR	0	0	0	0	0
MSUEVORALLYMOBILETERRESTRIAL	0	1	0	0	0
MOBILESERVICEROBOT	0	0	0	0	1
MOBILEROBOTTIAGO	0	0	0	0	0
MOBILEROBOTTERRESTRIAL	0	1	0	0	0
MOBILEROBOTS	1	1	0	1	0
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	1	0	0	0	0
IROBOTCREATE2	1	1	0	1	0
INFOTAINMENTROBOTMOBILESERVICEROBOT	0	0	0	0	1
HEXMANIPULATOR	0	1	0	0	1
HEXAII	1	1	0	0	0
HETEROGENOUSROBOTS	0	0	1	0	0
FIELDMOBILEROBOTS	0	1	0	0	0
CRAWLERTERMINATORBOT	0	0	0	0	0
BOXERCLEARPATH	0	1	0	1	0

Frequency



DOMAINSPECIFICPERFORMANCE
MISSIONPERFORMANCE
OVERHEADINTRODUCED
RESOURCECONSUMPTION

I8.Evaluation

I3.Robot.Type

TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION

WHICHISANINDUSTRIALAGV

WAREHOUSEDELIVERYROBOT

TURTLEBOT

TRIGLIDEINDUSTRIALASSEMBLY

TEDUSARTERRESTRIALSEARCH

SINGLESERVOINGROTATIONROBOT

RESCUE

QUADROCOPTER

PIONEER3DX

NAOROBOT

MULTIPLEHEXROTOR

MSUEVORALLYMOBILETERRESTRIAL

MOBILESERVICEROBOT

MOBILEROBOTTIAGO

MOBILEROBOTTERRESTRIAL

MOBILEROBOTS

KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR

IROBOTCREATE2

INFOTAINMENTROBOTMOBILESERVICEROBOT

HEXMANIPULATOR

HEXAII

HETEROGENOUSROBOTS

FIELDMOBILEROBOTS

CRAWLERTERMINATORBOT

BOXERCLEARPATH

I3.Robot.TypeI9.Adap..Logic

0	0	0	0	0	1	1	0
0	0	1	1	0	0	0	0
0	0	0	1	0	0	0	0
0	0	2	2	0	0	0	0
0	0	0	0	0	1	0	0
1	0	1	0	0	0	0	0
0	1	0	0	0	1	0	1
1	0	1	0	0	0	0	0
0	0	0	0	0	0	1	0
1	0	1	0	0	0	0	0
0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0
1	0	1	1	0	0	1	0
0	0	0	0	0	1	1	0
0	0	0	0	0	1	0	0
0	1	0	0	1	1	0	1
0	0	0	1	0	0	0	0
0	0	0	1	0	0	0	0
0	0	0	0	0	0	1	0
0	2	0	0	0	2	0	2
0	0	0	0	0	1	0	0
0	0	2	0	0	0	0	0
0	1	0	0	0	1	0	1
0	0	0	0	0	0	0	0
0	0	0	0	0	1	1	0

Frequency



20

10

0

I9.Adap..Logic

AIPLANNER
COMPARISONTOHRESHOLD
CONSTRAINTSOLVINGMODELCHECKING
DOMAINSPECIFICALGORITHM
NUMERICALOPTIMIZATION
SEARCHPROCEDURE
SEMANTICREASONING
UTILITYCALCULATION

I3.Robot.Type

I3.Robot.TypeI10.Monitor

TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION

KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR

INFOTAINMENTROBOTMOBILESERVICEROBOT

BOXERCLEARPATH

WHICHISANINDUSTRIALAGV

WAREHOUSEDELIVERYROBOT

TURTLEBOT

TRIGLIDEINDUSTRIALASSEMBLY

TEDUSARTERRESTRIALSEARCH

SINGLESERVOINGROTATIONROBOT

RESCUE

QUADROCOPTER

PIONEER3DX

NAOROBOT

MULTIPLEHEXROTOR

MSUEVORALLYMOBILETERRESTRIAL

MOBILESERVICEROBOT

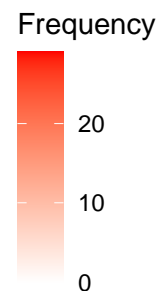
MOBILEROBOTTIAGO

MOBILEROBOTTERRESTRIAL

MOBILEROBOTS

IROBOTCREATE2

ENVIRONMENT
ENVIRONMENTAL
MANAGEDSYSTEM
MISSION



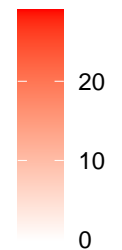
I10.Monitor

I3.Robot.Type

I3.Robot.TypeI11.Analyze

WHICHISANINDUSTRIALAGV	0	0	0	0	1	0	0
WAREHOUSEDELIVERYROBOT	1	1	0	0	0	0	0
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	0	0	1	0	0	0	0
TURTLEBOT	1	1	1	0	1	0	0
TRIGLIDEINDUSTRIALASSEMBLY	0	0	0	0	0	0	0
TEDUSARTERRESTRIALSEARCH	1	1	0	0	0	0	0
SINGLESERVOINGROTATIONROBOT	1	0	1	0	0	0	0
RESCUE	1	1	0	0	0	0	0
QUADROCOPTER	0	0	0	0	0	1	0
PIONEER3DX	1	1	0	0	0	0	0
NAOROBOT	0	0	0	0	1	0	1
MULTIPLEHEXROTOR	0	0	1	0	0	0	0
MSUEVORALLYMOBILETERRESTRIAL	0	0	0	1	0	0	0
MOBILESERVICEROBOT	0	0	0	0	1	0	1
MOBILEROBOTTIAGO	0	0	0	0	1	0	0
MOBILEROBOTTERRESTRIAL	0	0	0	0	0	0	0
MOBILEROBOTS	0	0	1	0	0	0	0
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	0	0	0	0	0	1	0
IROBOTCREATE2	0	1	0	0	0	0	0
INFOTAINMENTROBOTMOBILESERVICEROBOT	0	0	0	0	1	0	0
HEXMANIPULATOR	1	0	1	0	0	0	0
HEXAII	0	0	0	0	0	0	0
HETEROGENOUSROBOTS	0	0	0	0	2	0	0
FIELDMOBILEROBOTS	0	0	1	0	0	0	0
CRAWLERTERMINATORBOT	0	0	1	0	0	0	0
BOXERCLEARPATH	0	0	0	0	1	0	0

Frequency



ANALYZINGAGGREGATINGDATA
COMPARISONTOEXPECTEDSYSTEMSTATE
COMPARISONTOTHRESHOLDS
DONEDURINGPLAN
LOGICALINFERENCE
TASKUSERDRIVEN

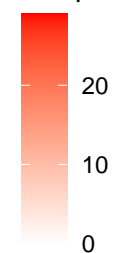
I11.Analyze

I3.Robot.Type

I3.Robot.Type_____I12.Plan

WHICHISANINDUSTRIALAGV	1	0	0
WAREHOUSEDELIVERYROBOT	0	1	0
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	0	1	0
TURTLEBOT	2	2	0
TRIGLIDEINDUSTRIALASSEMBLY	1	0	0
TEDUSARTERRESTRIALSEARCH	0	0	1
SINGLESERVOINGROTATIONROBOT	1	0	0
RESCUE	0	0	1
QUADROCOPTER	0	1	0
PIONEER3DX	0	0	1
NAOROBOT	1	0	0
MULTIPLEHEXROTOR	0	0	0
MSUEVORALLYMOBILETERRESTRIAL	1	0	0
MOBILESERVICEROBOT	2	0	0
MOBILEROBOTTIAGO	0	1	0
MOBILEROBOTTERRESTRIAL	0	1	0
MOBILEROBOTS	2	0	0
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	0	1	0
IROBOTCREATE2	0	1	0
INFOTAINMENTROBOTMOBILESERVICEROBOT	1	0	0
HEXMANIPULATOR	1	0	0
HEXAII	1	0	0
HETEROGENOUSROBOTS	2	2	0
FIELDMOBILEROBOTS	1	0	0
CRAWLERTERMINATORBOT	0	0	0
BOXERCLEARPATH	1	0	0

Frequency

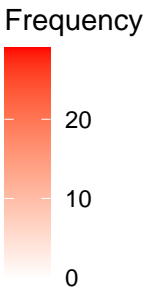


DETERMININGTHEOPTIMALCHOICE
RELYINGONDESIGNTIMERULESMODELS
USINGAIPANNINGLANGUAGES

I12.Plan

I3.Robot.TypeI13.Execute

I3.Robot.Type



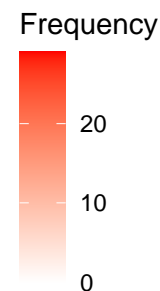
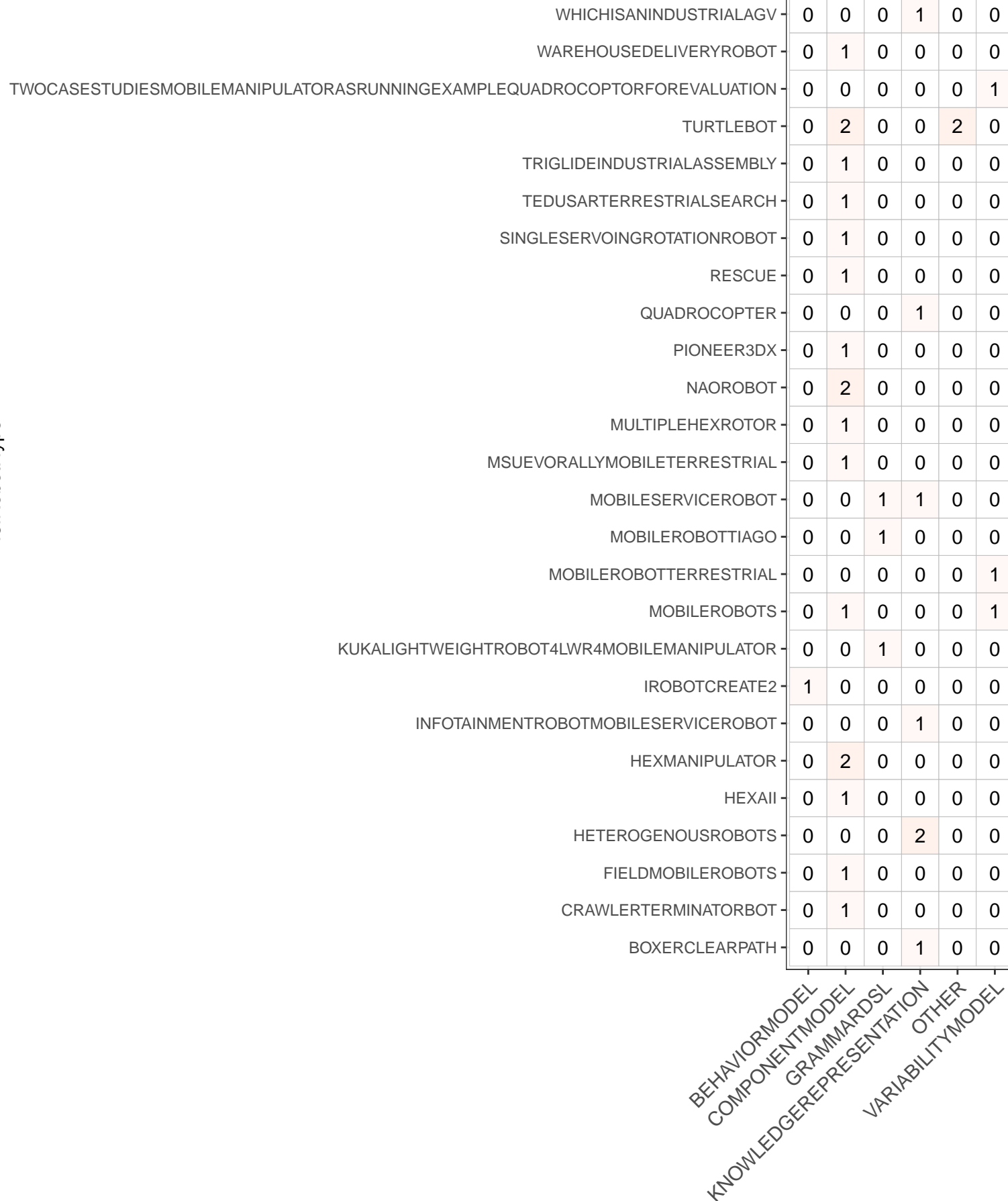
WHICHISANINDUSTRIALAGV	0	0	0	1	0
WAREHOUSEDELIVERYROBOT	0	0	0	1	0
TWOCASESTUDIESMOBILEMANIPULATORASRUNNINGEXAMPLEQUADROCOPTORFOREVALUATION	0	0	0	1	1
TURTLEBOT	2	0	0	3	1
TRIGLIDEINDUSTRIALASSEMBLY	0	0	1	0	0
TEDUSARTERRESTRIALSEARCH	0	0	0	0	1
SINGLESERVOINGROTATIONROBOT	0	0	0	1	1
RESCUE	0	0	0	0	1
QUADROCOPTER	0	0	0	0	1
PIONEER3DX	0	0	0	0	1
NAOROBOT	0	2	0	0	0
MULTIPLEHEXROTOR	0	0	0	0	1
MSUEVORALLYMOBILETERRESTRIAL	0	0	0	1	0
MOBILESERVICEROBOT	0	1	0	1	2
MOBILEROBOTTIAGO	0	0	0	1	0
MOBILEROBOTTERRESTRIAL	0	0	0	1	1
MOBILEROBOTS	0	0	0	2	1
KUKALIGHTWEIGHTROBOT4LWR4MOBILEMANIPULATOR	0	0	0	0	1
IROBOTCREATE2	0	0	0	1	0
INFOTAINMENTROBOTMOBILESERVICEROBOT	0	1	0	0	1
HEXMANIPULATOR	0	0	0	1	1
HEXAII	0	0	1	0	0
HETEROGENOUSROBOTS	0	2	0	0	0
FIELDMOBILEROBOTS	0	0	0	1	1
CRAWLERTERMINATORBOT	0	0	0	0	1
BOXERCLEARPATH	0	0	0	1	0

CHANGEINRELATIONSHIPS
BEHAVIORALTASK
RELATIONSHIPSBETWEENCOMPONENTS
COMPONENTREDEPLOYMENT
REPARAMETERIZATIONOFCOMPONENTS
SWAPPINGAROUNDOFCOMPONENTS

I13.Execute

I3.Robot.Type

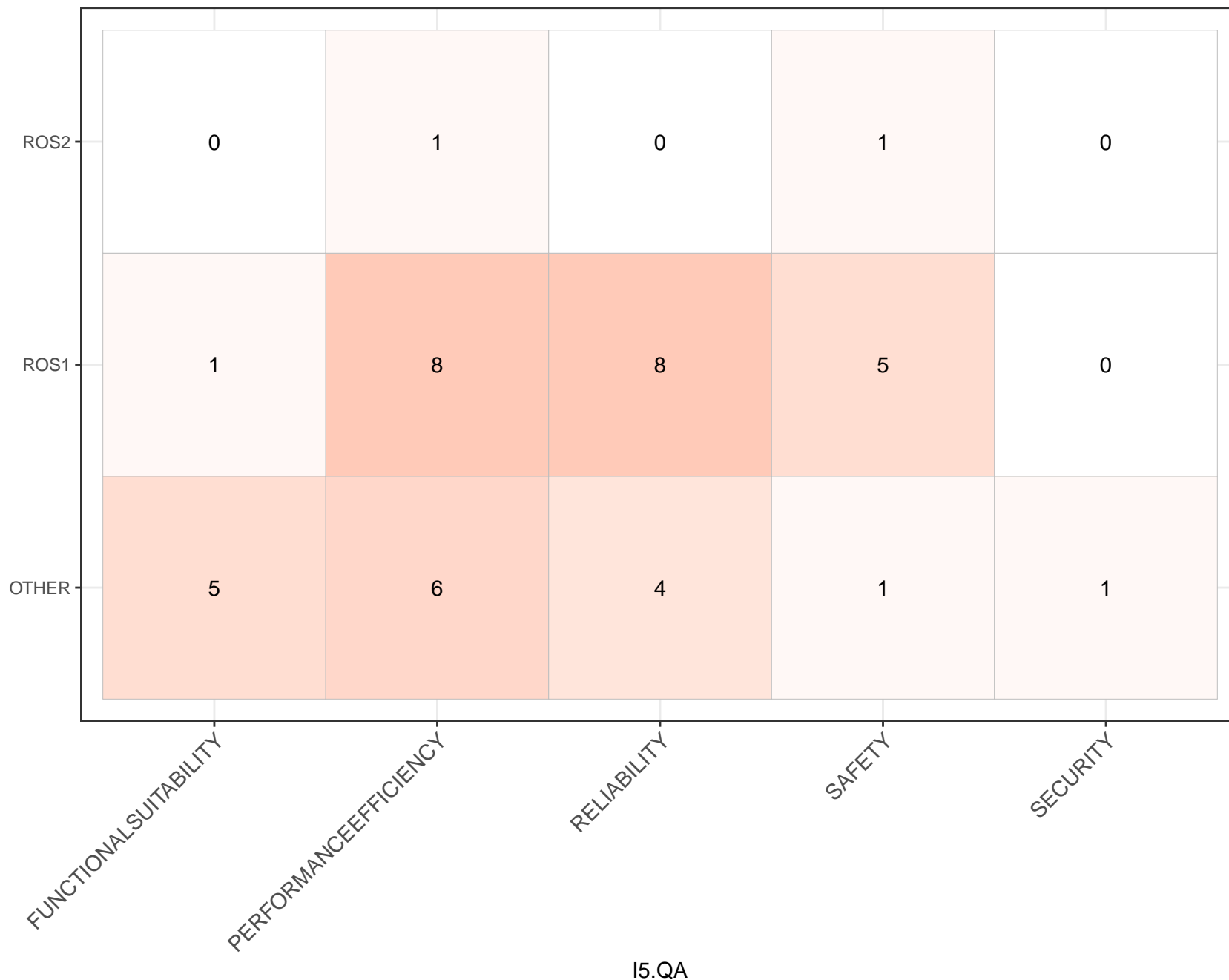
I3.Robot.TypeI14.Knowledge



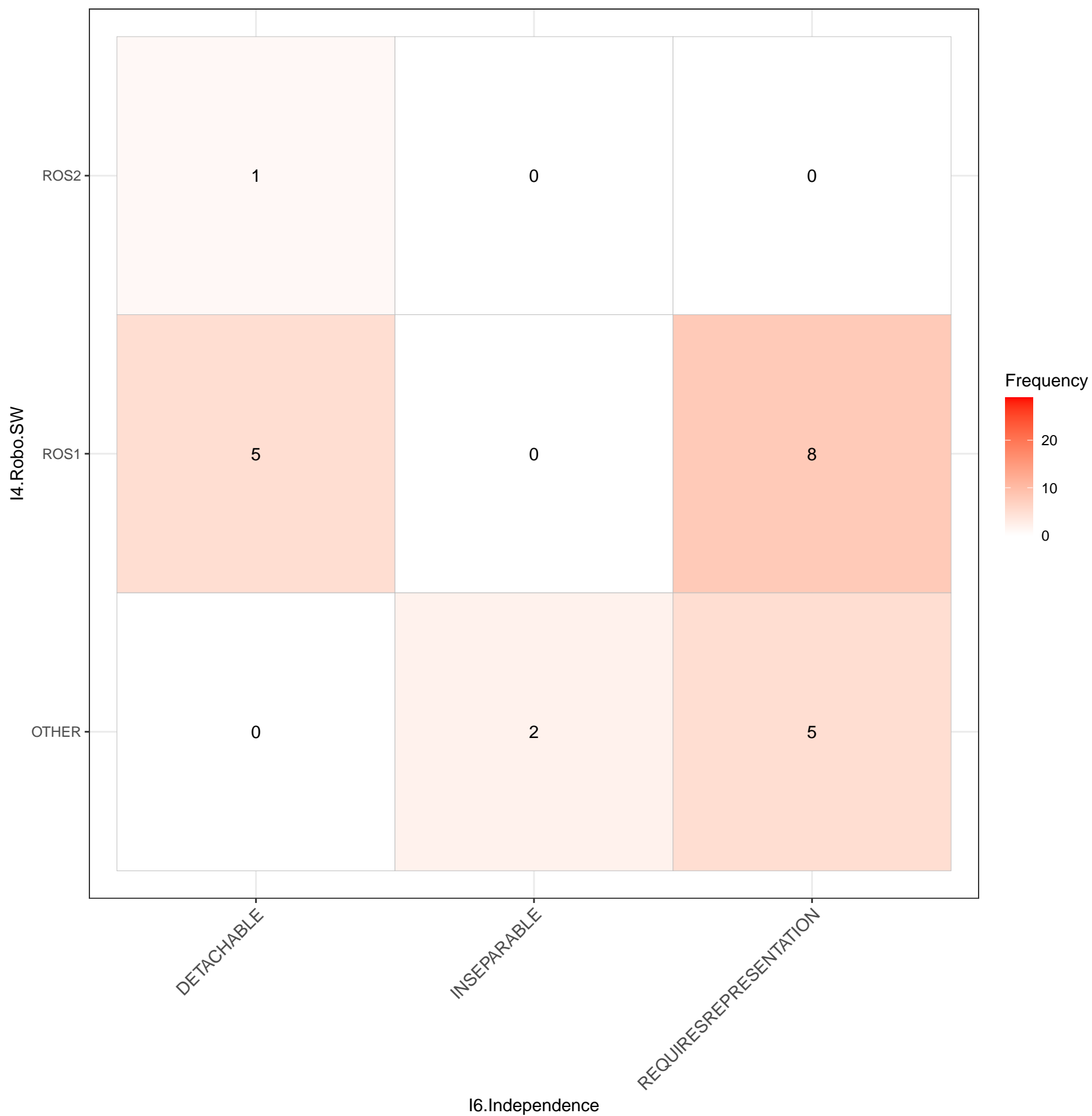
I14.Knowledge

I4.Robo.SW _____ I5.QA

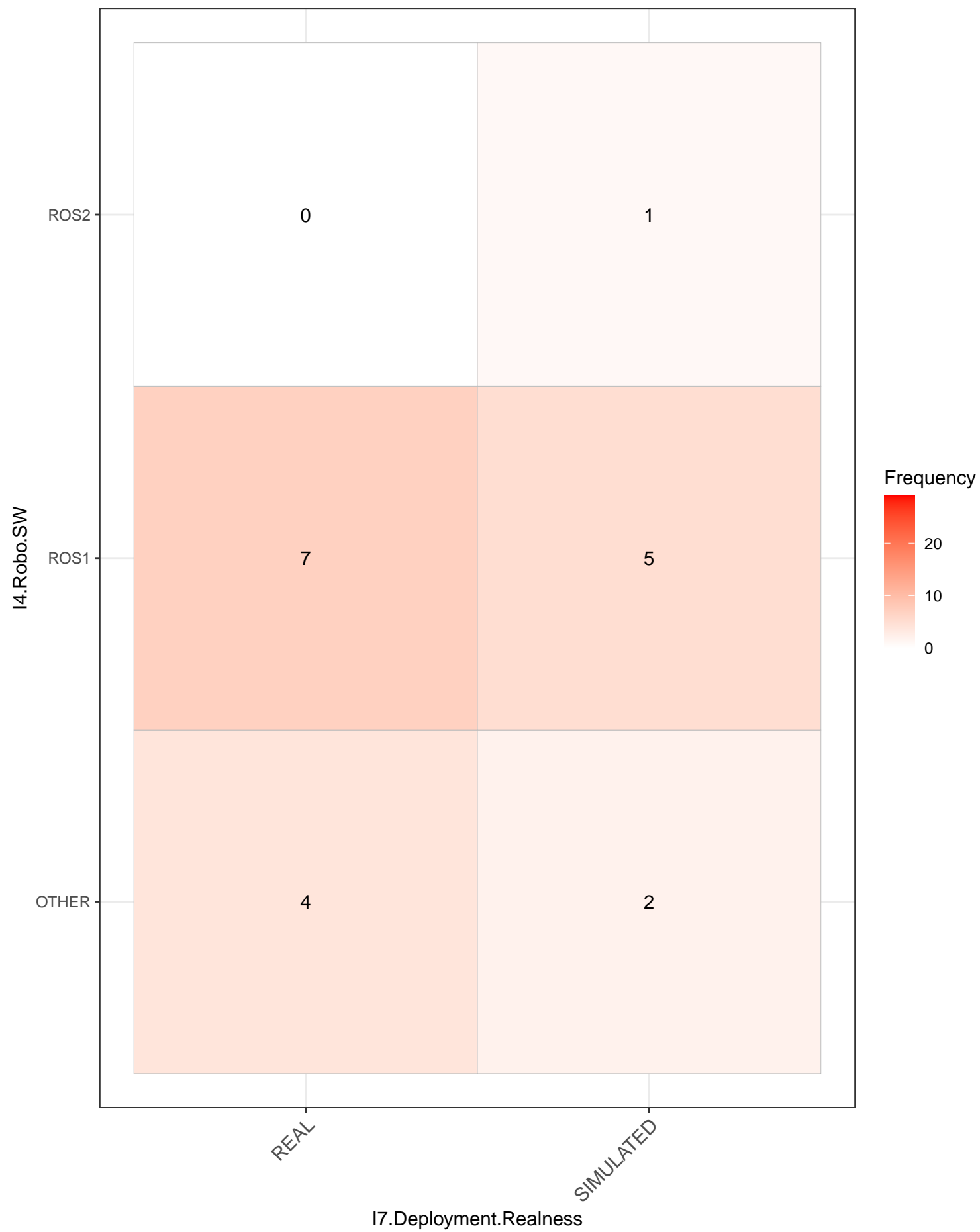
I4.Robo.SW



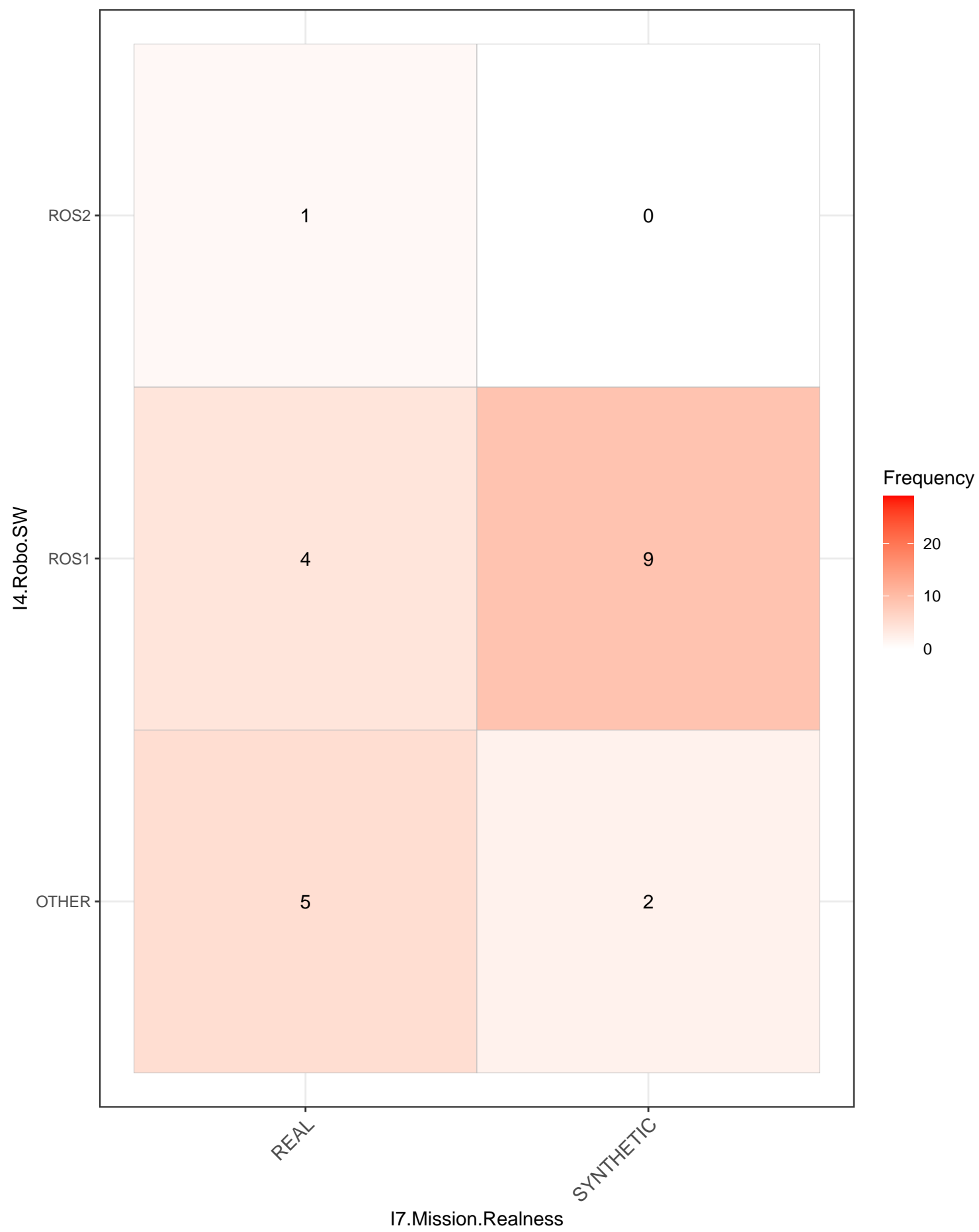
I4.Robo.SW _____ I6.Independence



I4.Robo.SW_____I7.Deployment.Realness



I4.Robo.SW_____I7.Mission.Realness



I4.Robo.SW_____Experiment.Method

I4.Robo.SW

ROS2

ROS1

OTHER

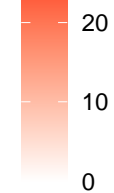
EXPERIMENT

NOEVALUATION

SHOWCASE

Experiment.Method

Frequency



0

1

0

7

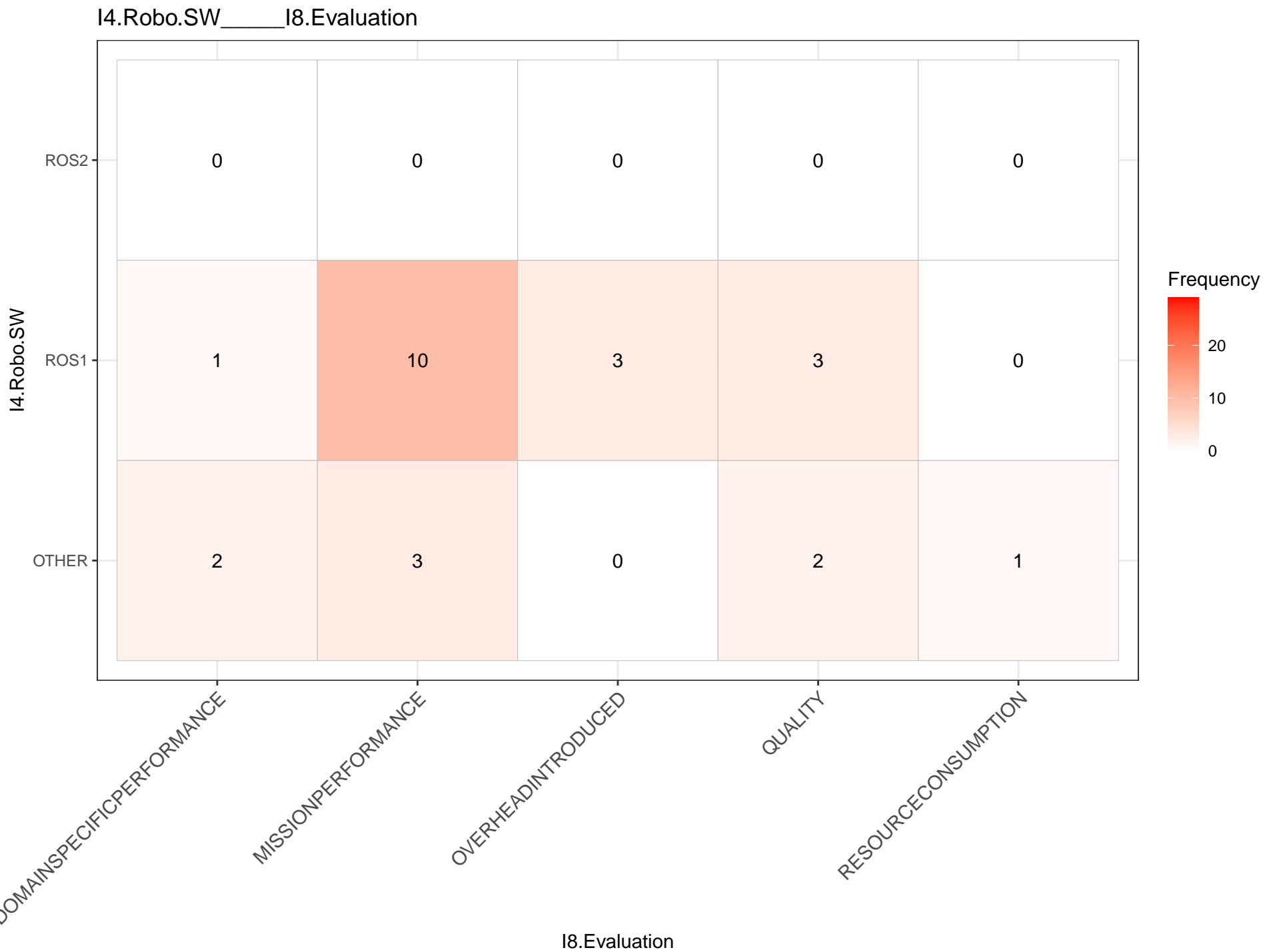
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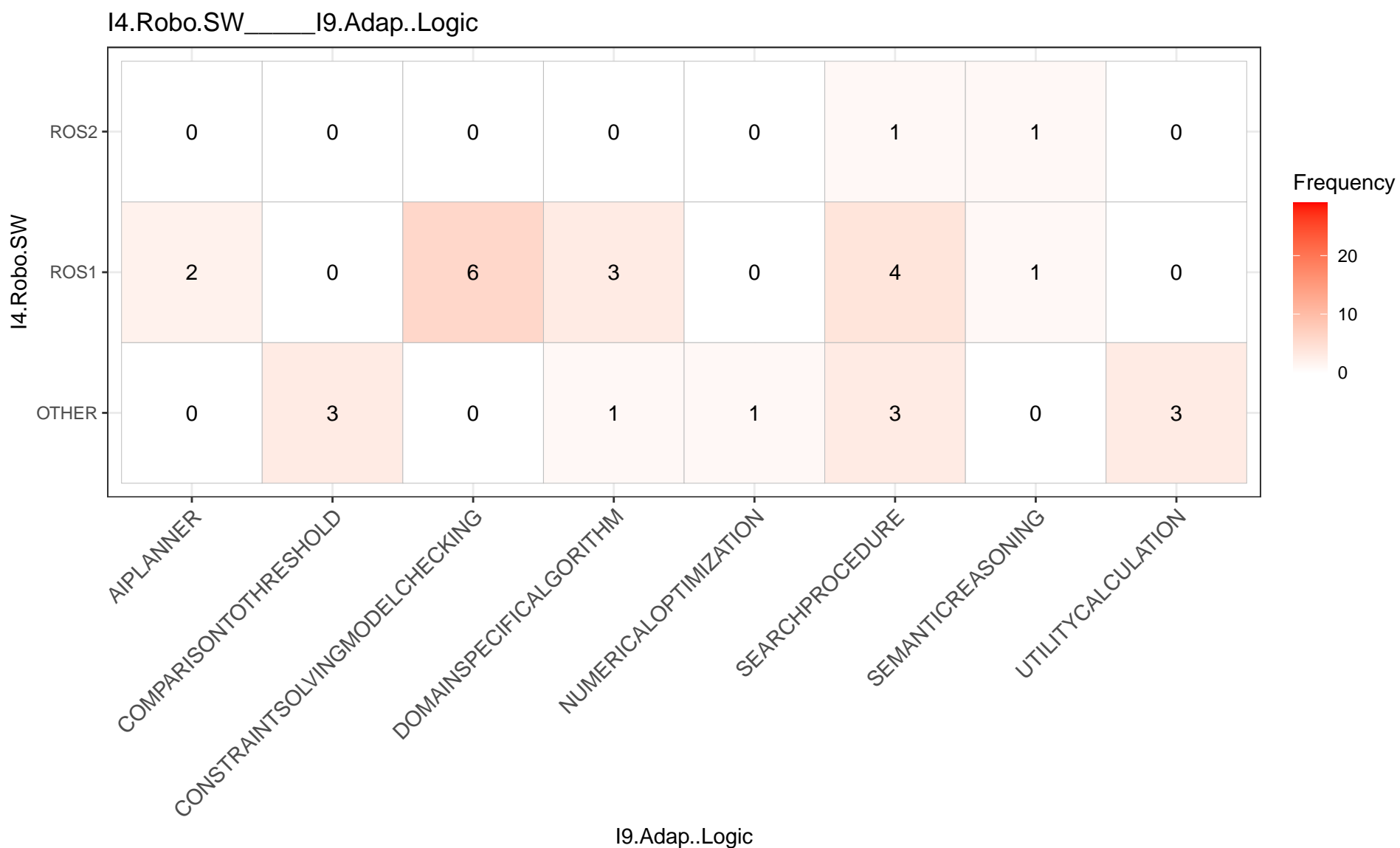
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4

3

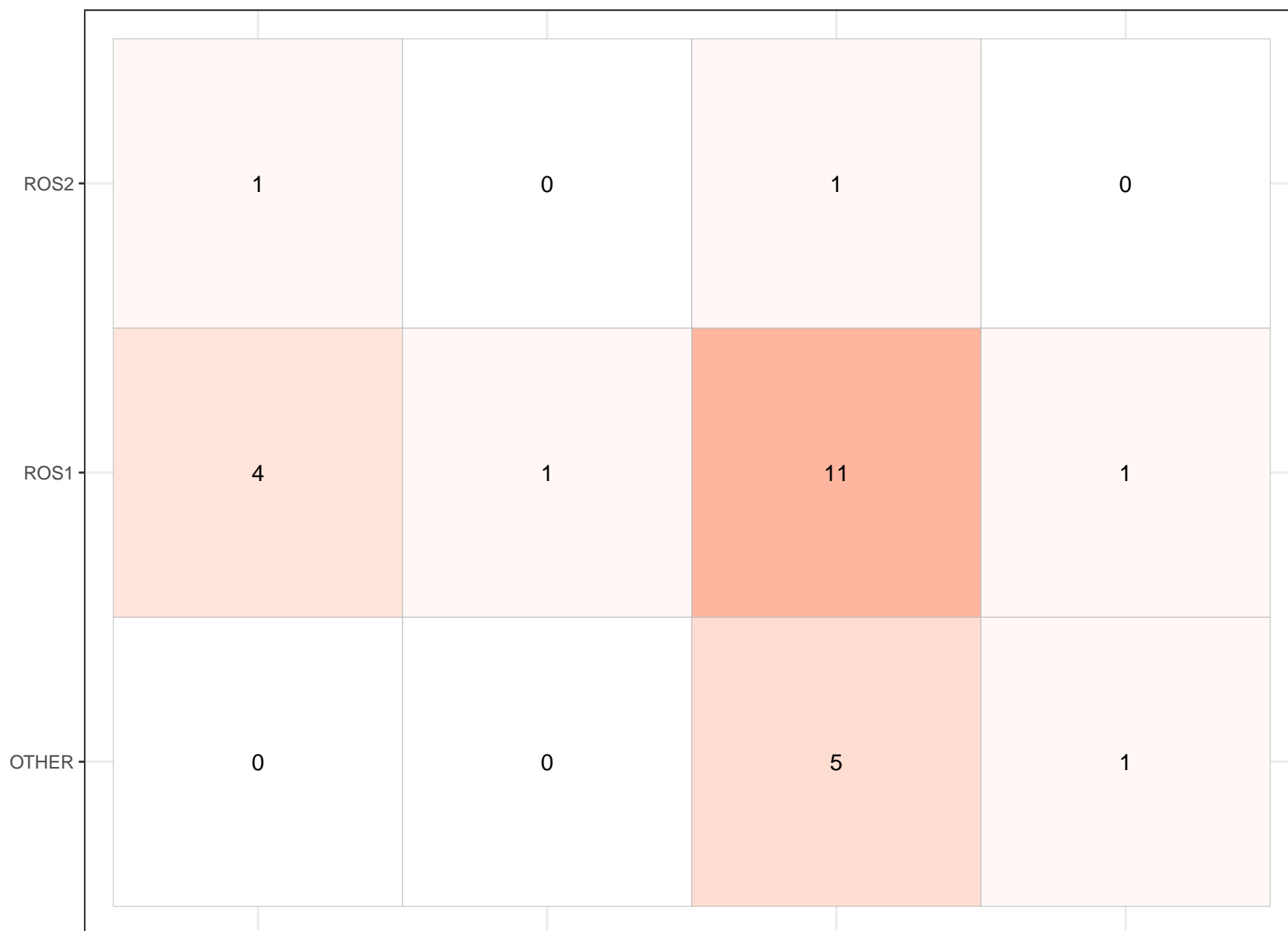
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I4.Robo.SW ____ I10.Monitor

I4.Robo.SW



Frequency



20

10

0

OTHER

ROS2

ROS1

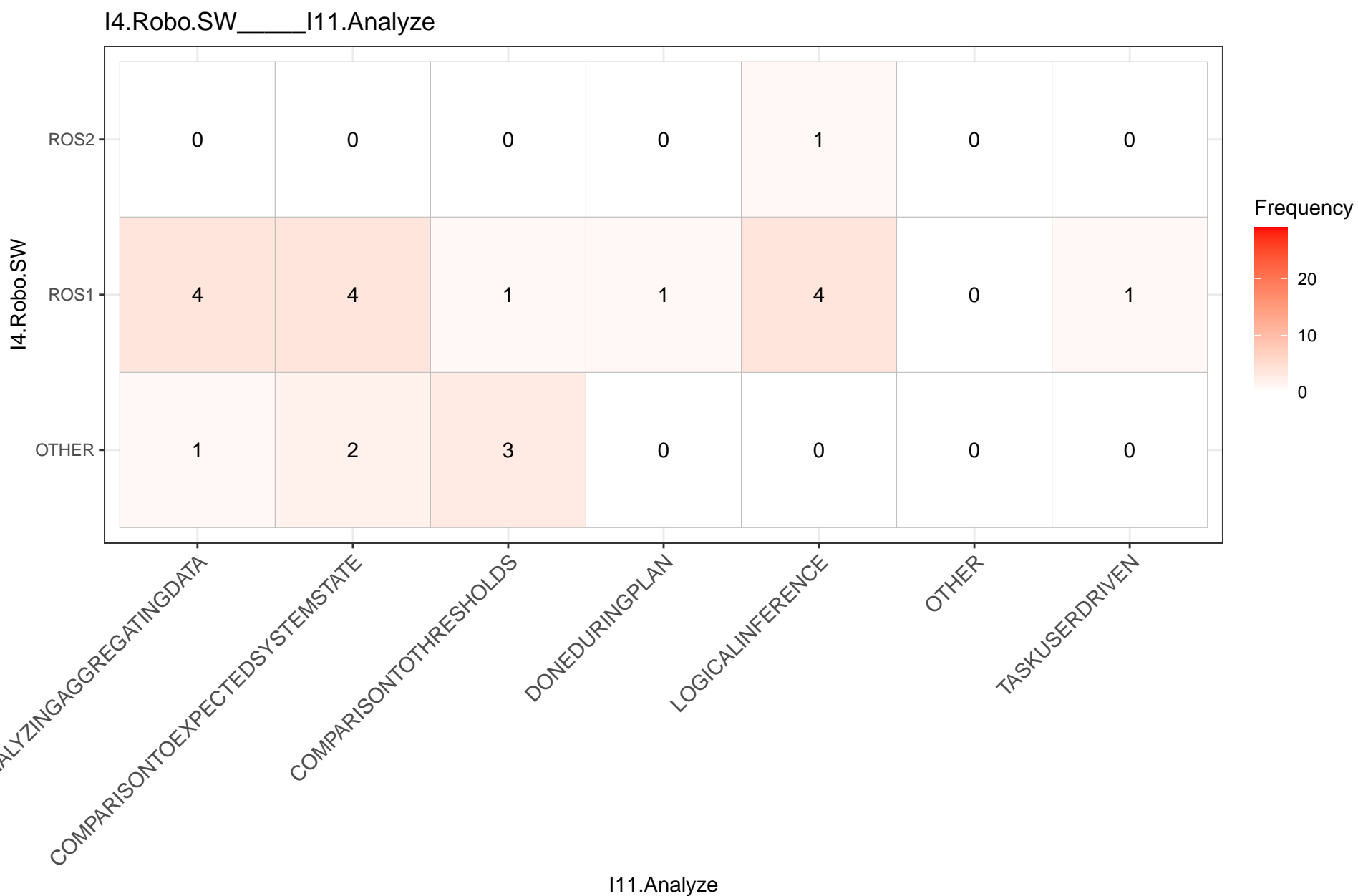
ENVIRONMENT

ENVIRONMENTAL

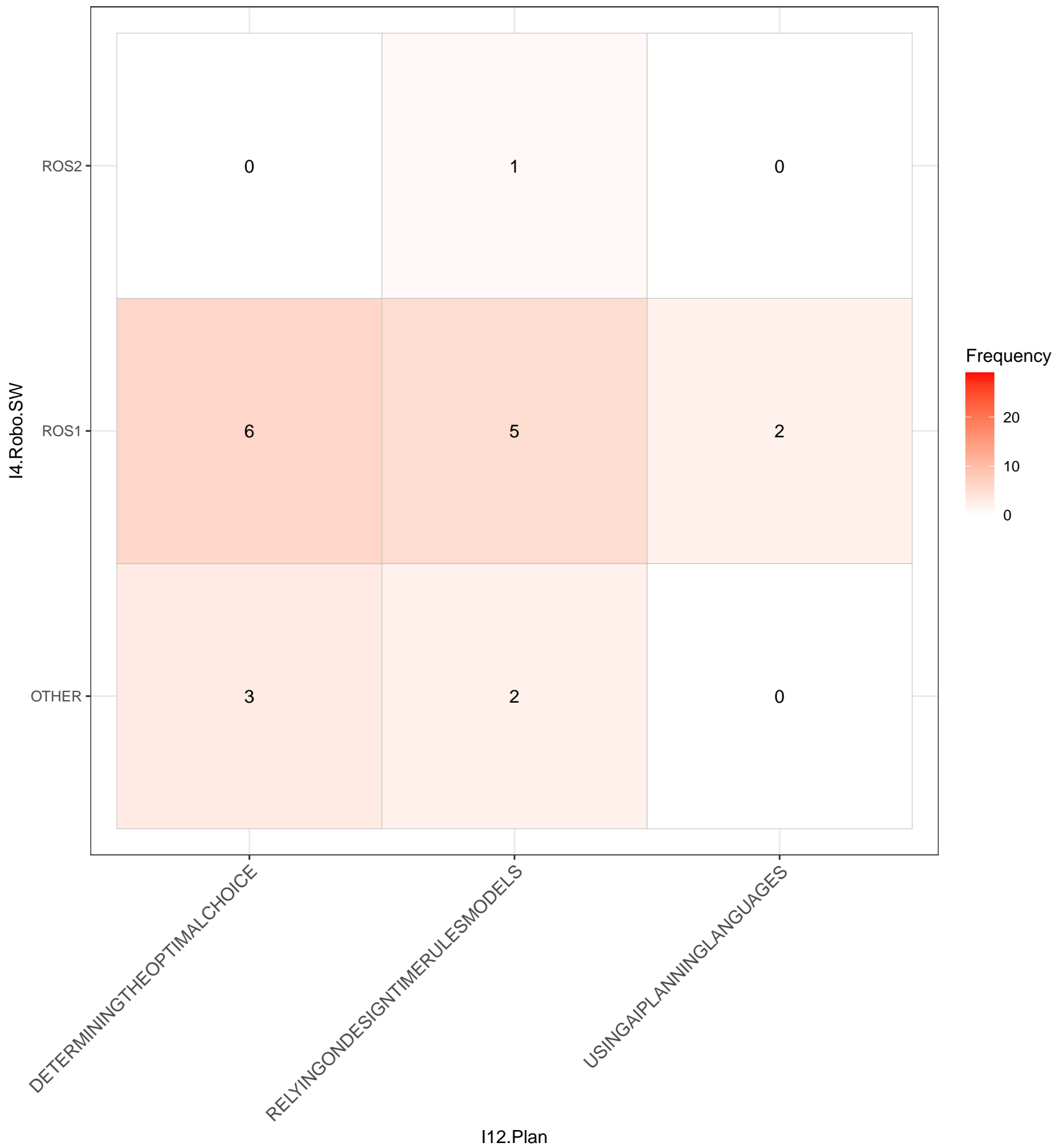
I10.Monitor

MANAGEDSYSTEM

MISSION

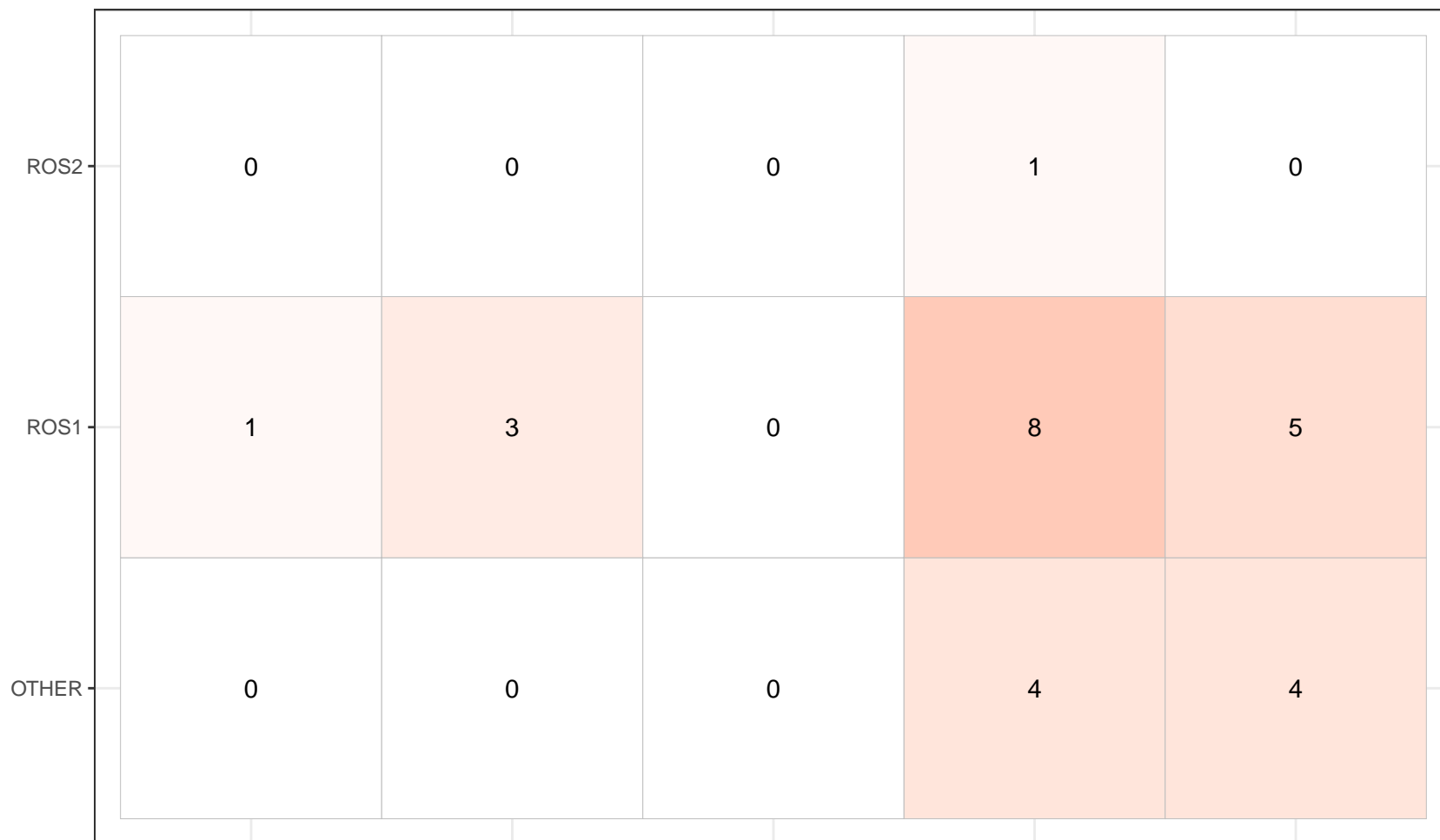


I4.Robo.SW_____I12.Plan



I4.Robo.SW_____I13.Execute

I4.Robo.SW



Frequency



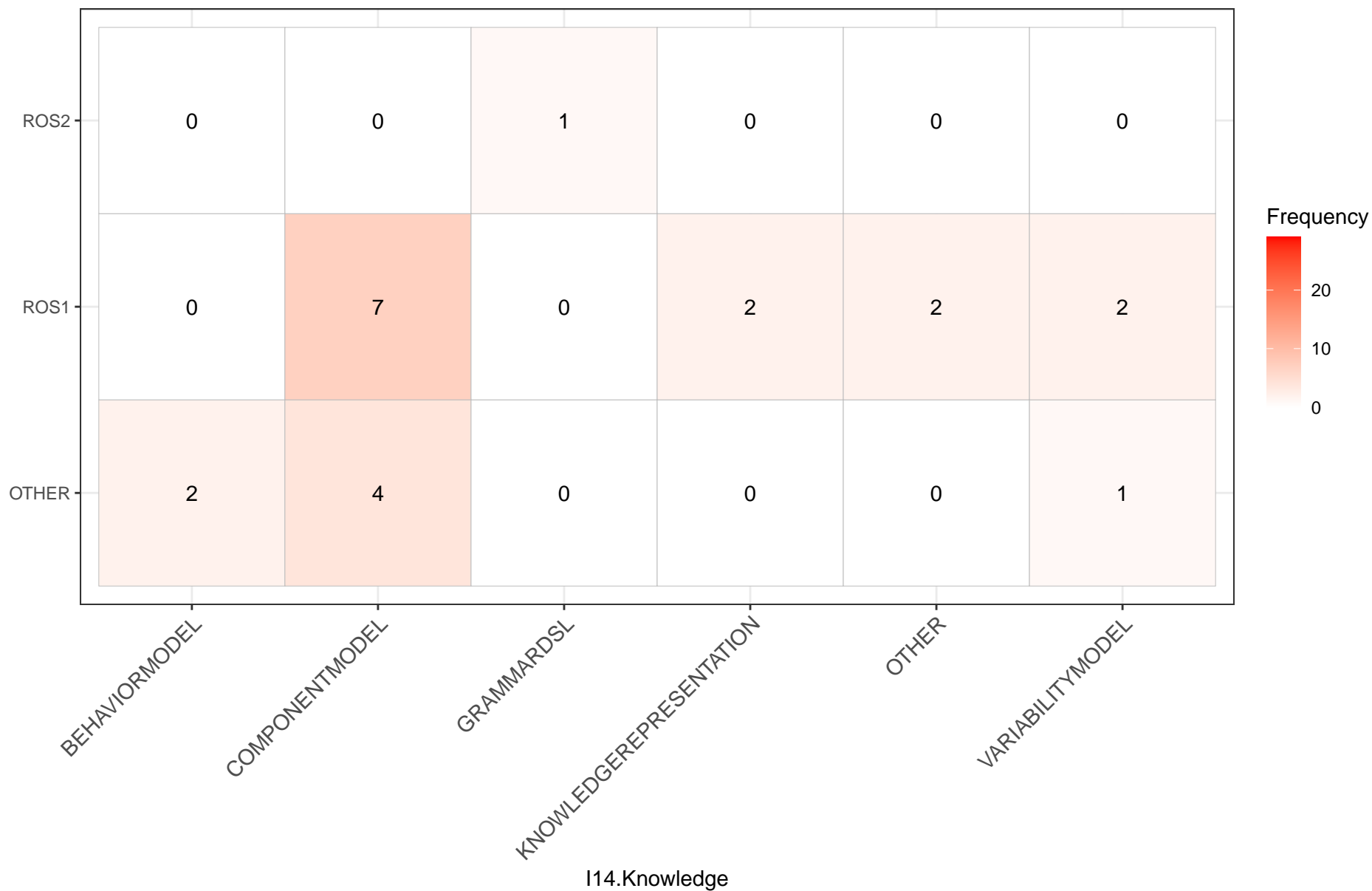
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10

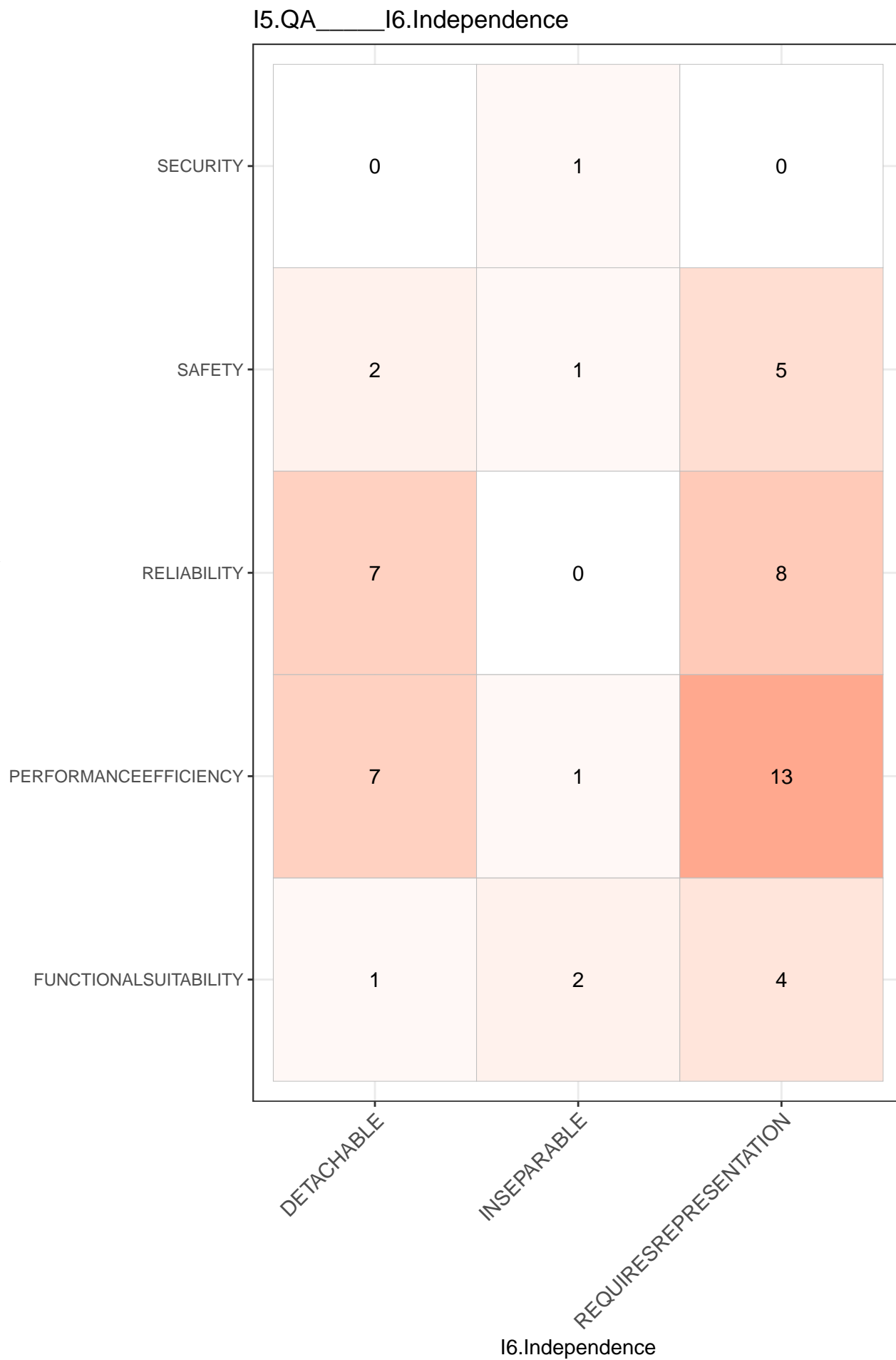
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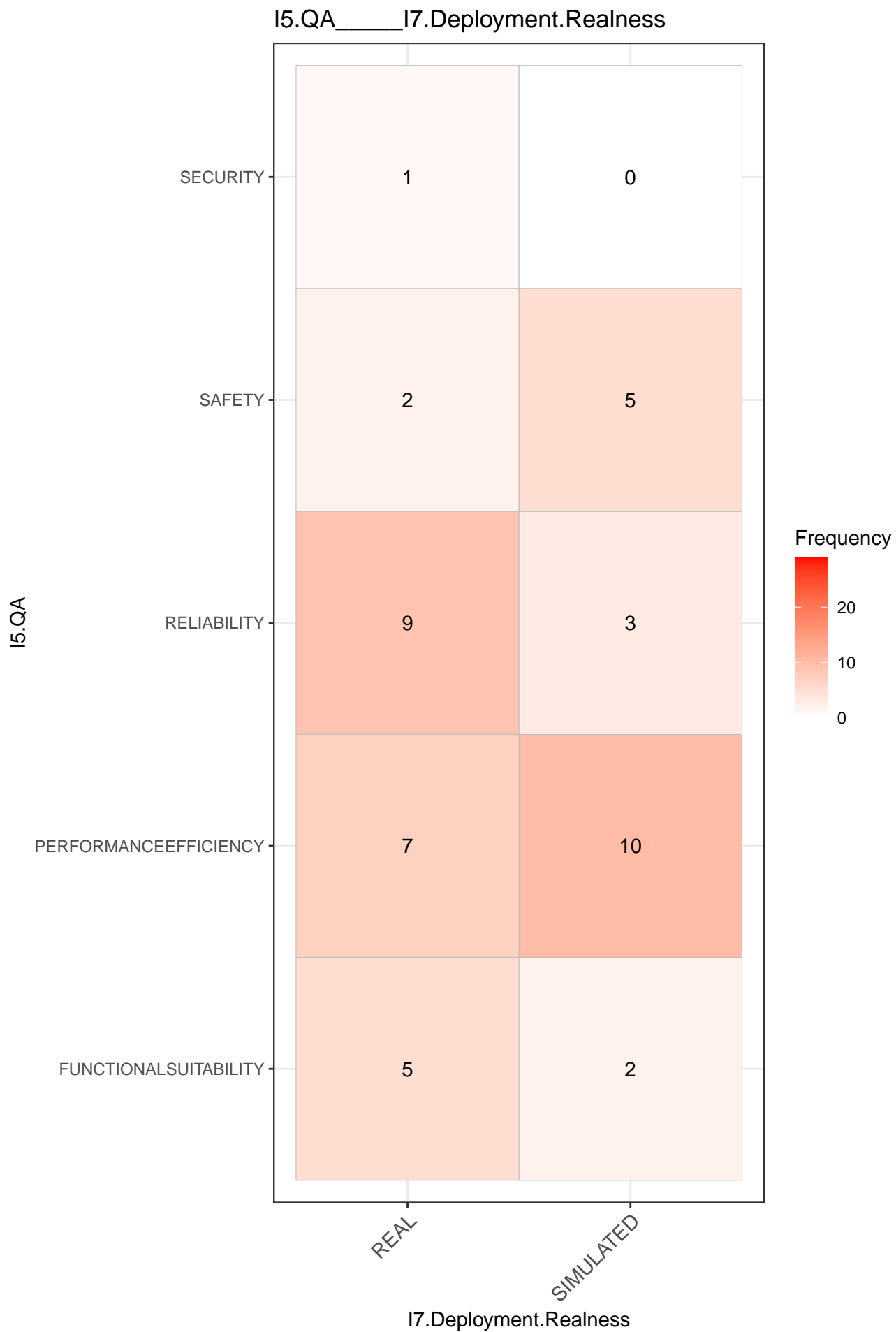
I13.Execute

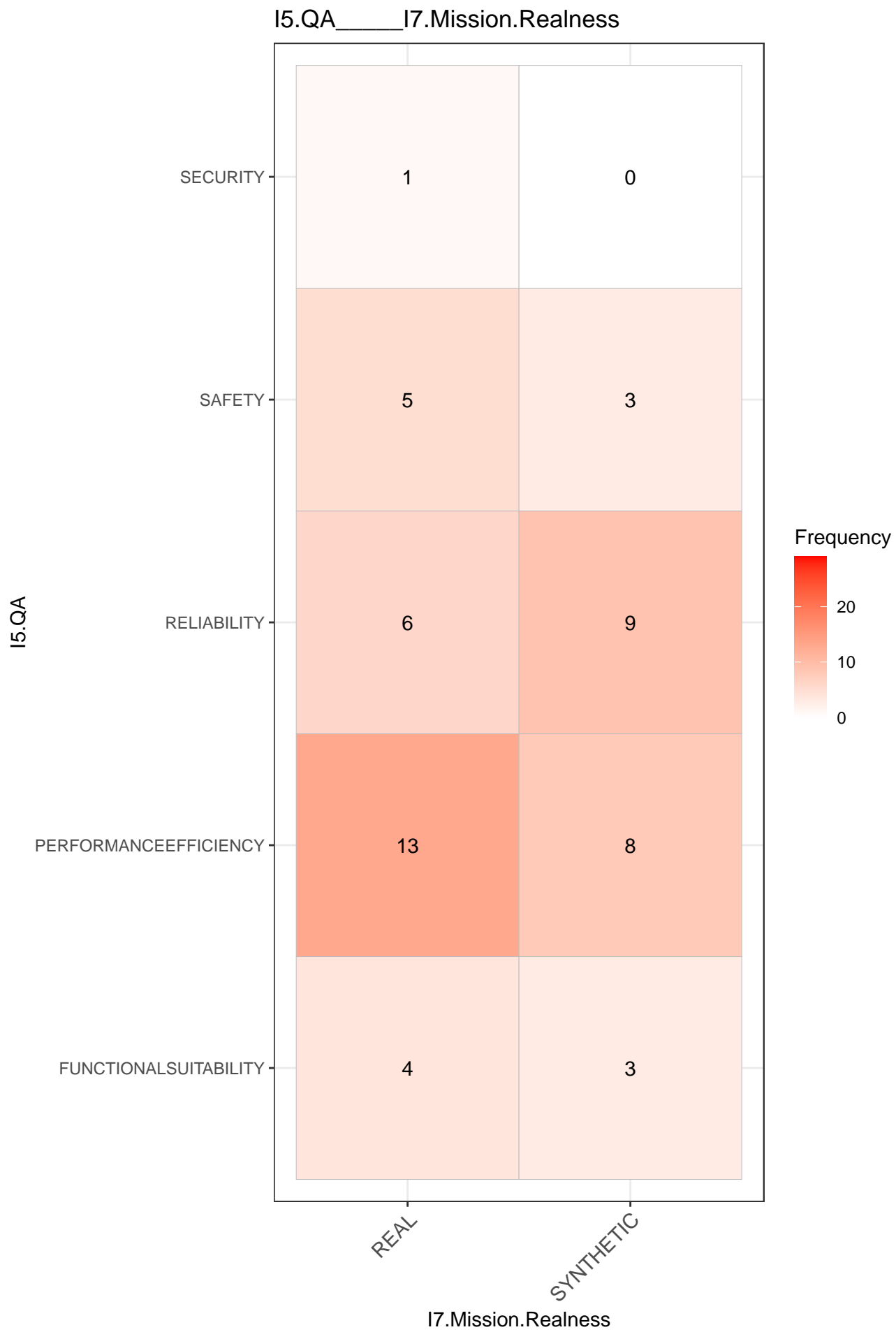
I4.Robo.SW _____ I14.Knowledge

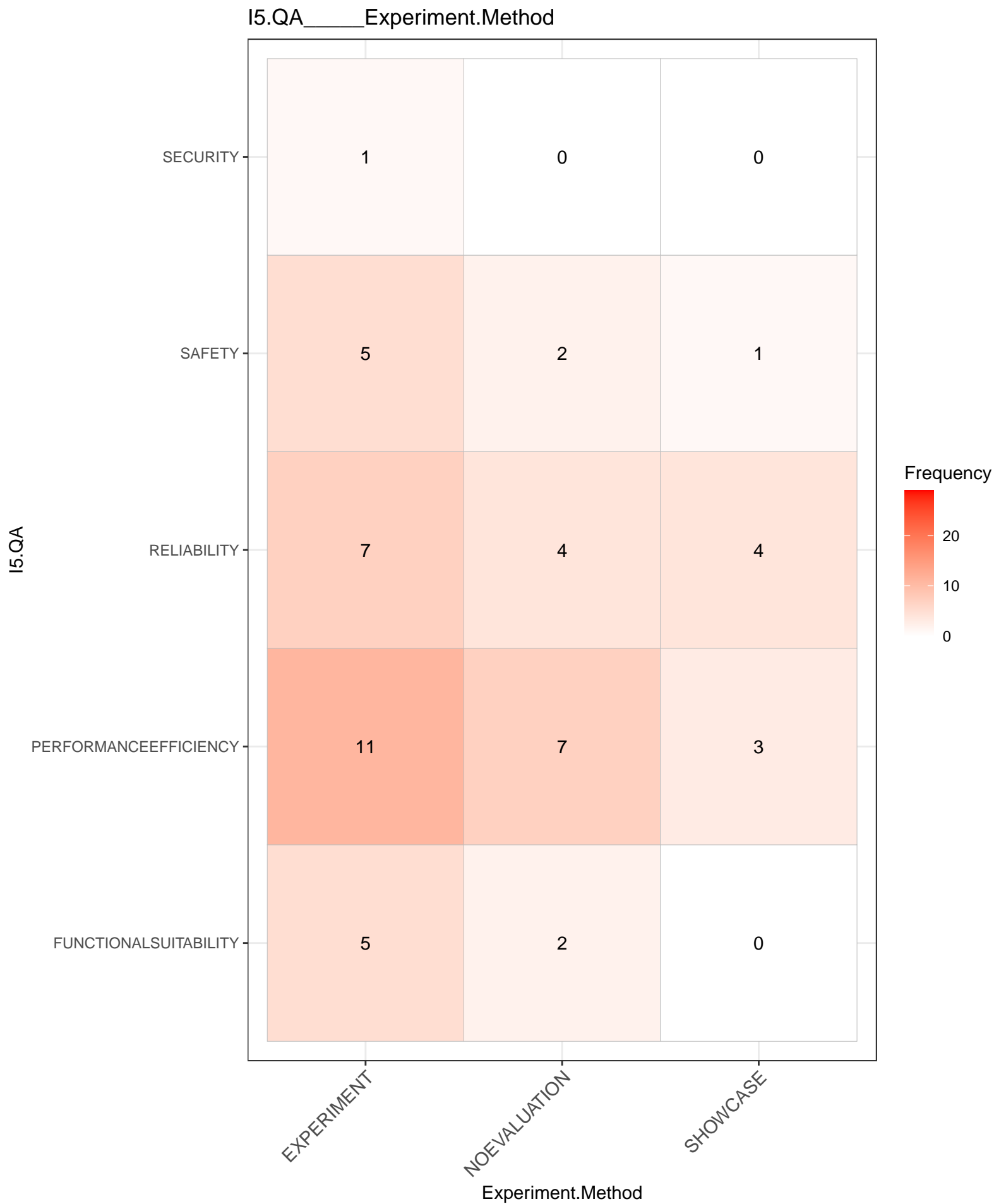


I5.QA









I5.QA_____I8.Evaluation

I5.QA

SECURITY

SAFETY

RELIABILITY

PERFORMANCEEFFICIENCY

FUNCTIONALSUITABILITY

DOMAINSPECIFICPERFORMANCE

MISSIONPERFORMANCE

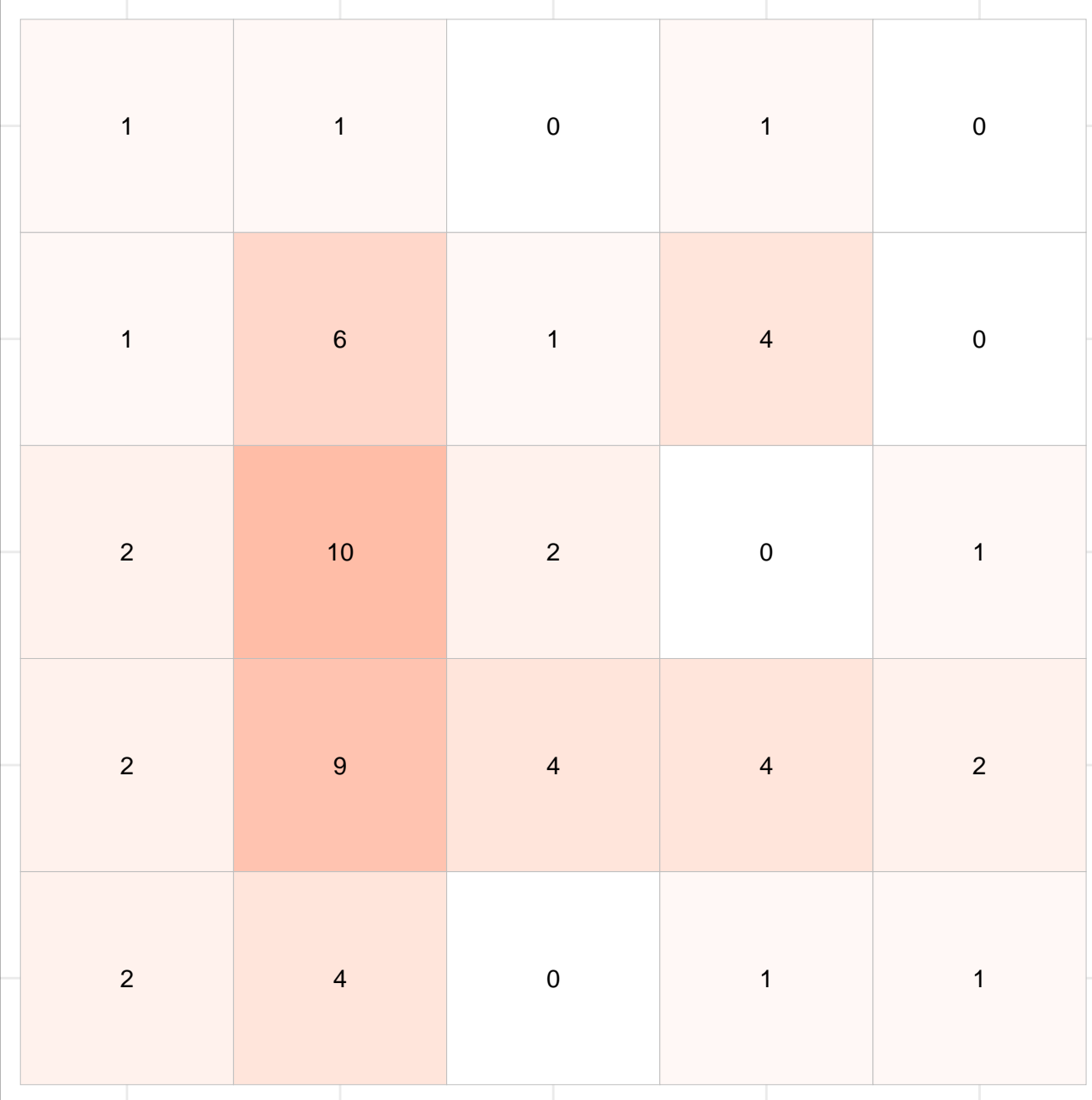
OVERHEADINTRODUCED

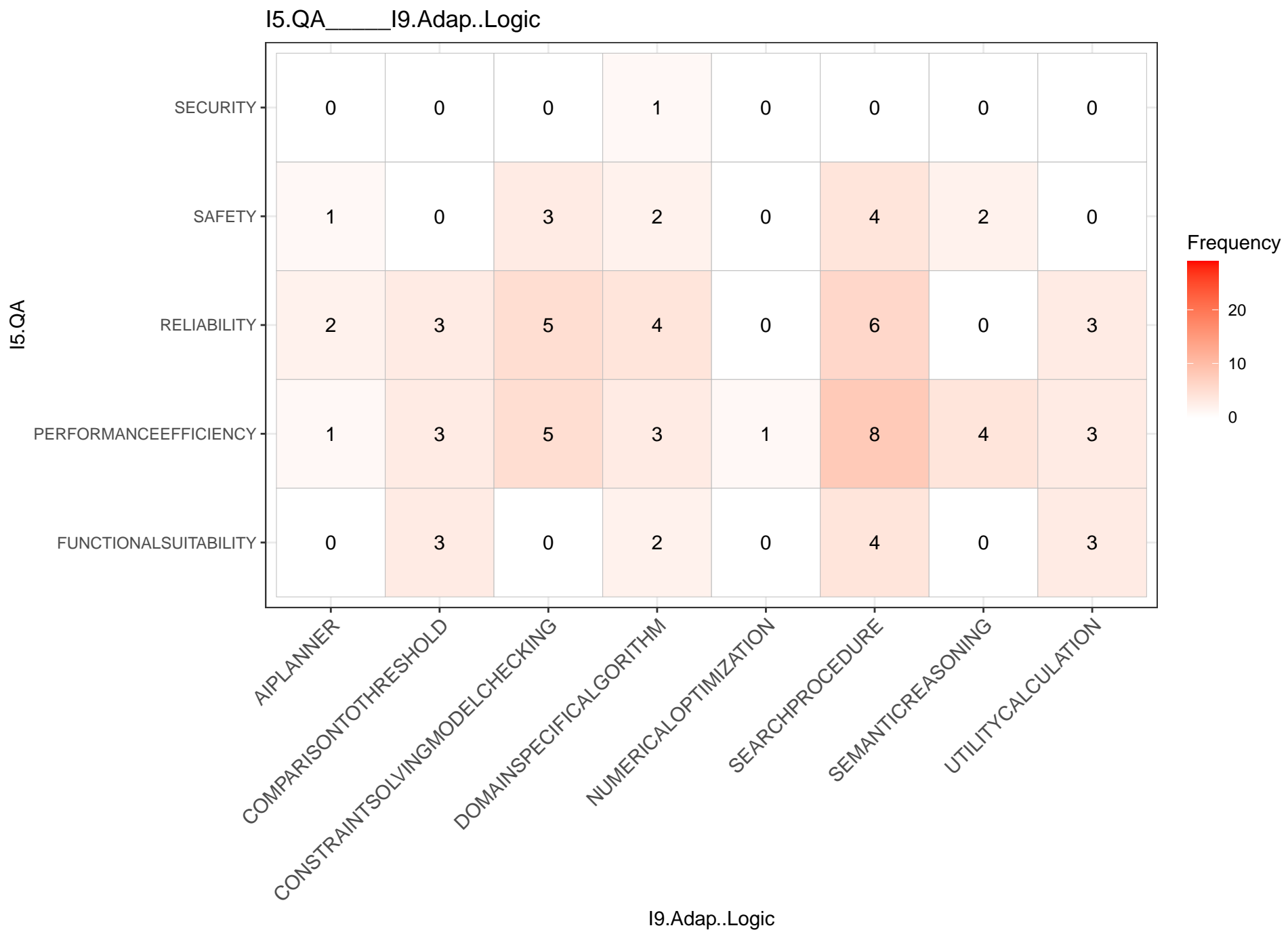
QUALITY

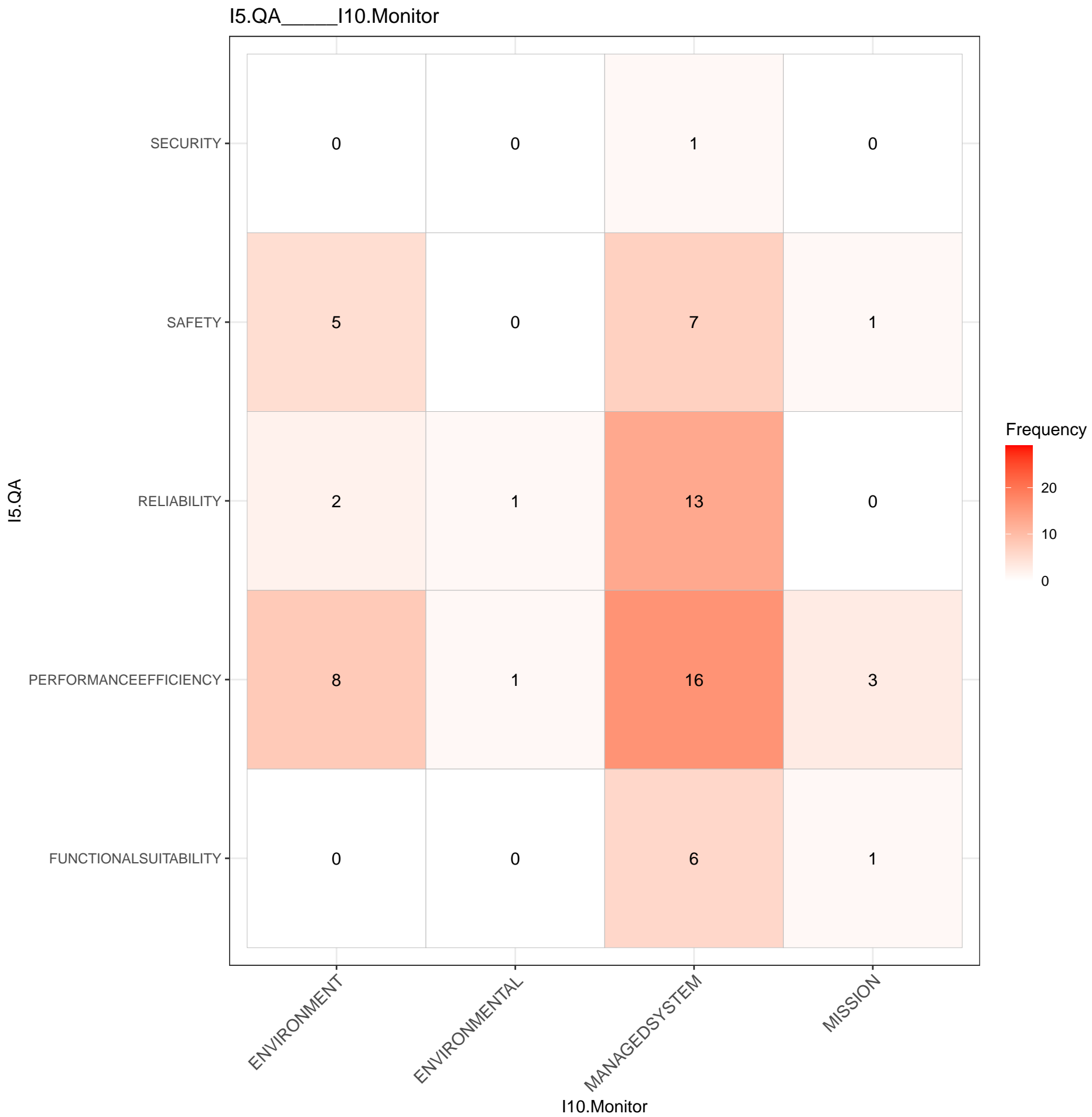
RESOURCECONSUMPTION

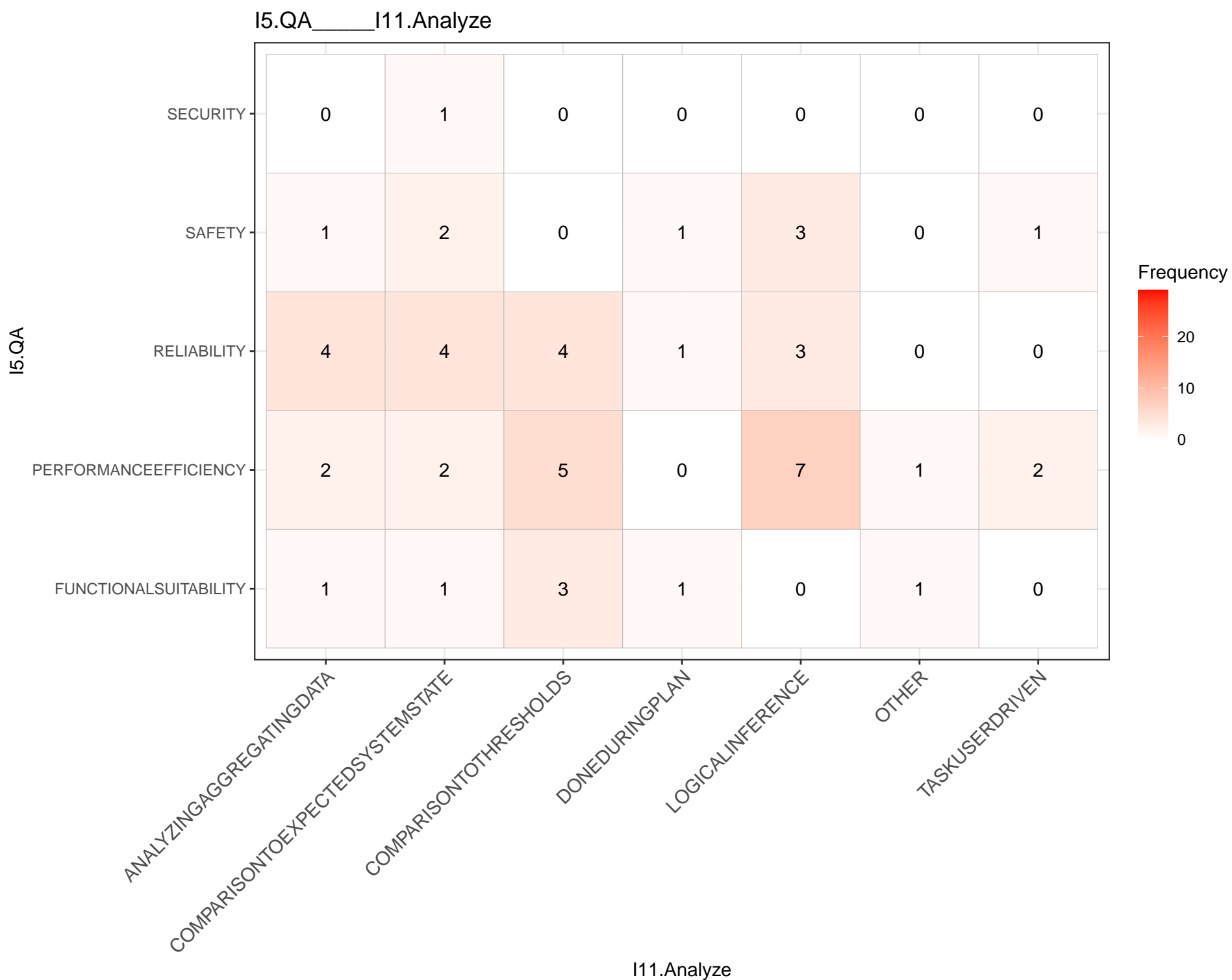
I8.Evaluation

Frequency









I5.QA

SECURITY

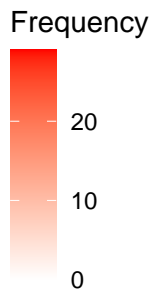
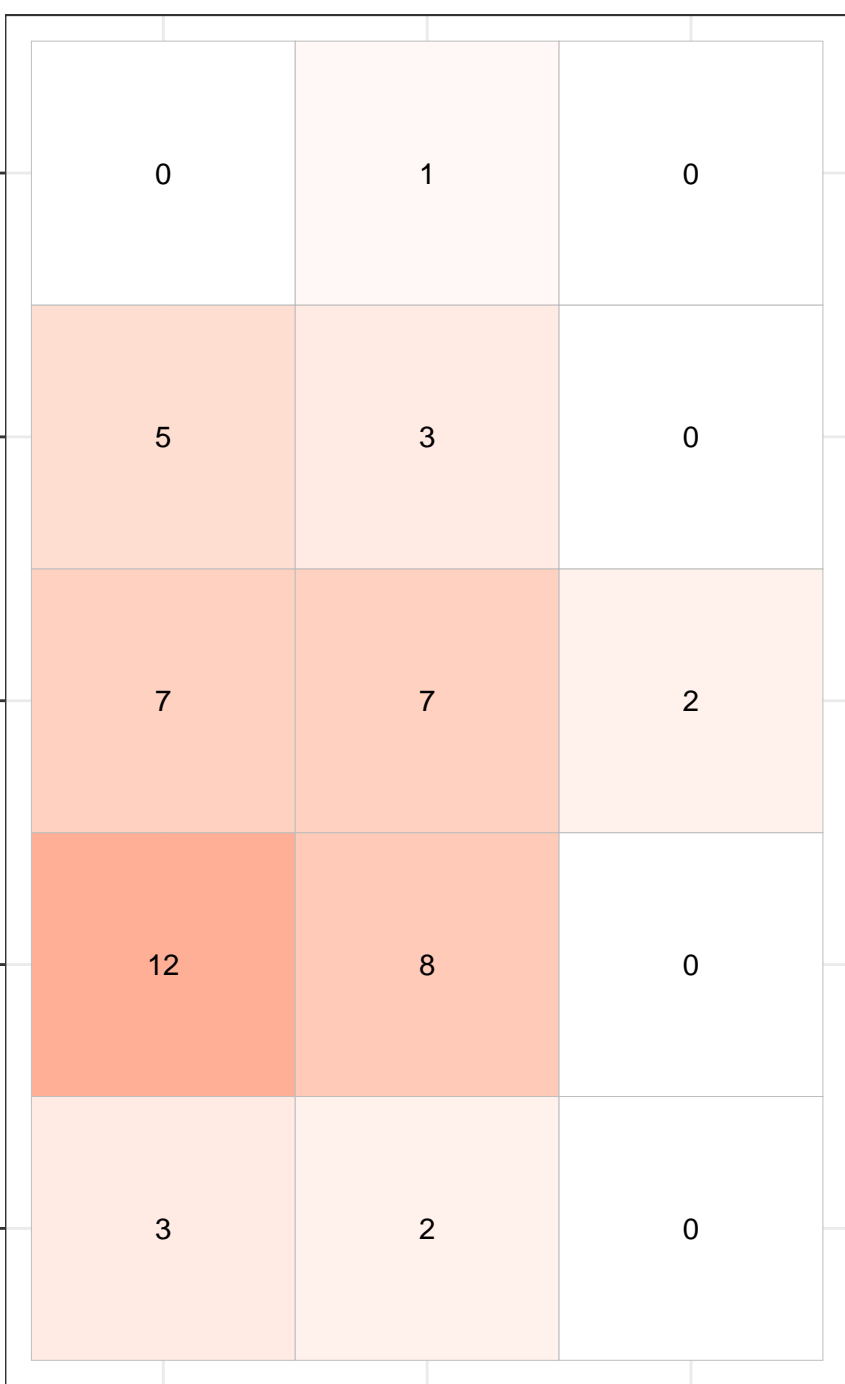
SAFETY

RELIABILITY

PERFORMANCEEFFICIENCY

FUNCTIONALSUITABILITY

I5.QA_I12.Plan



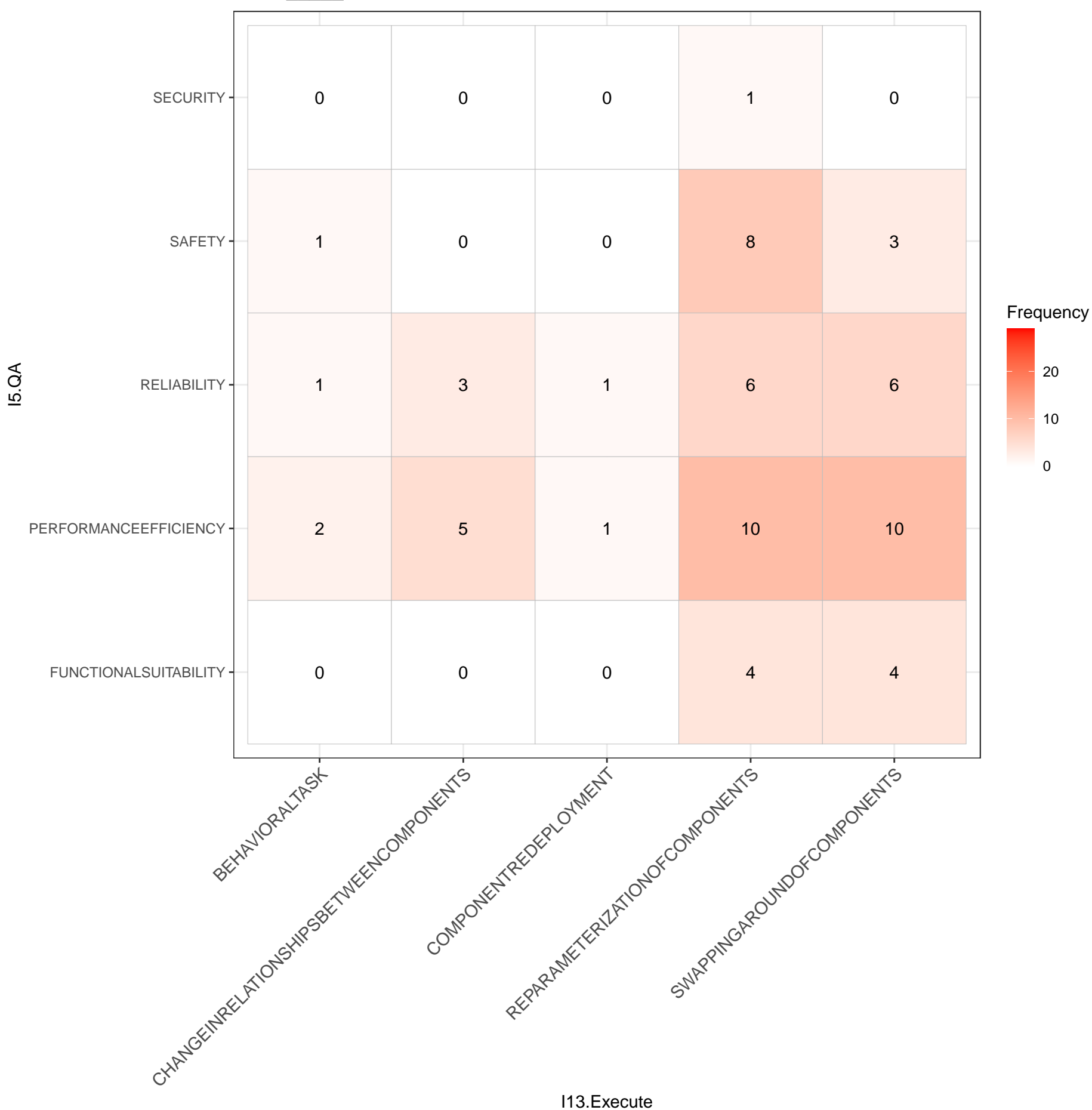
DETERMININGTHEOPTIMALCHOICE

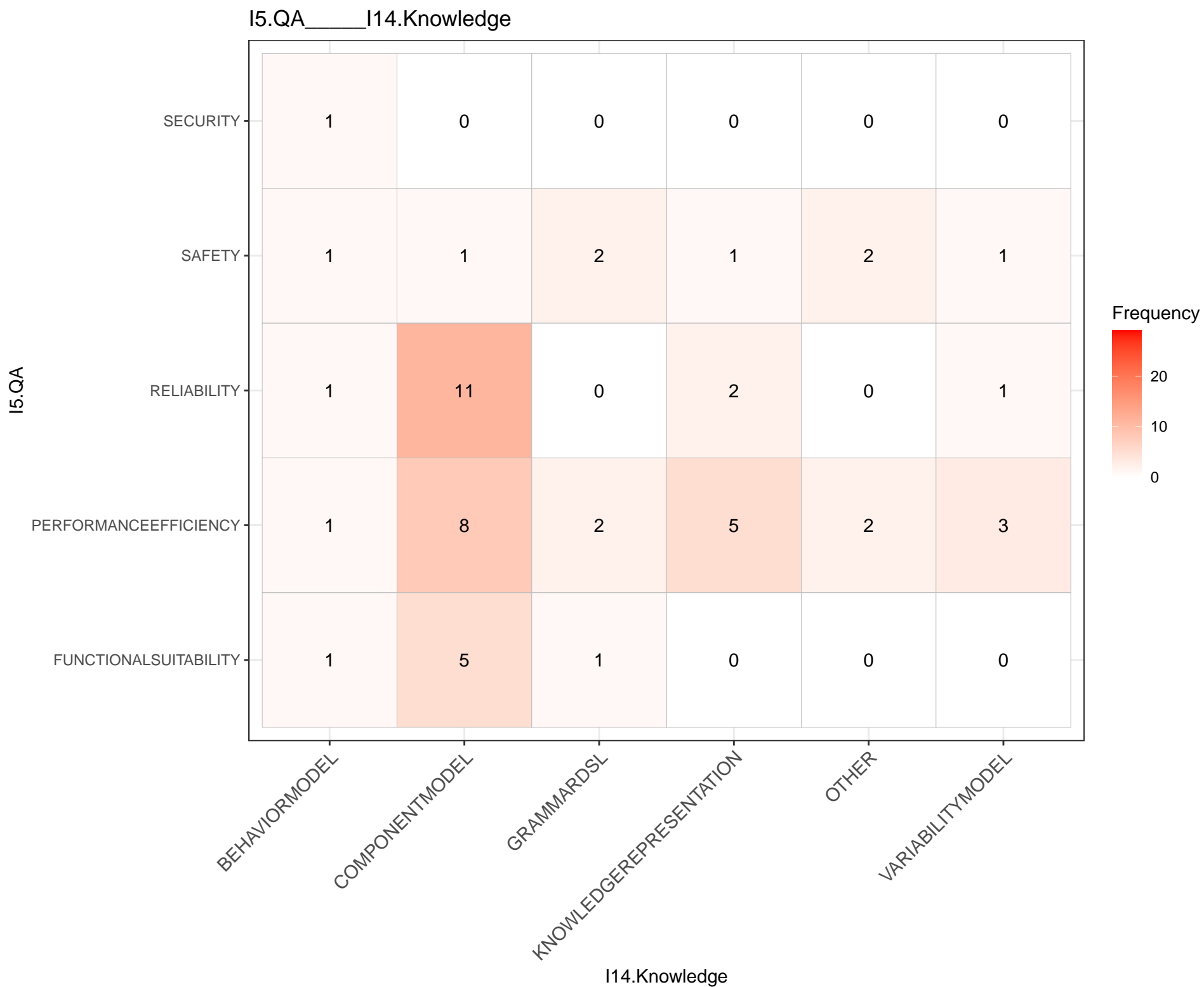
RELYINGONDESIGNTIMERULESMODELS

USINGAIPANNINGLANGUAGES

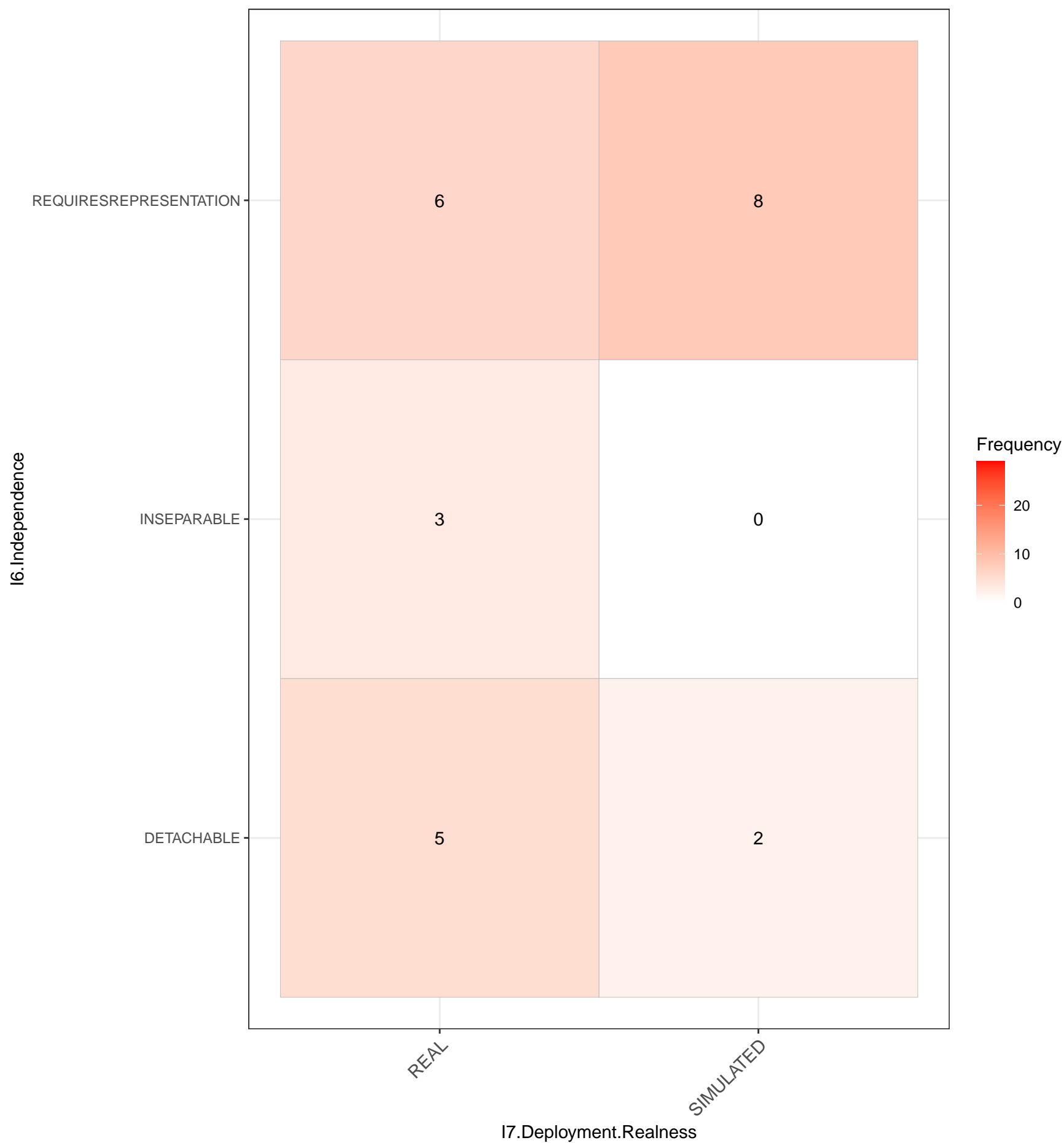
I12.Plan

I5.QA_____I13.Execute

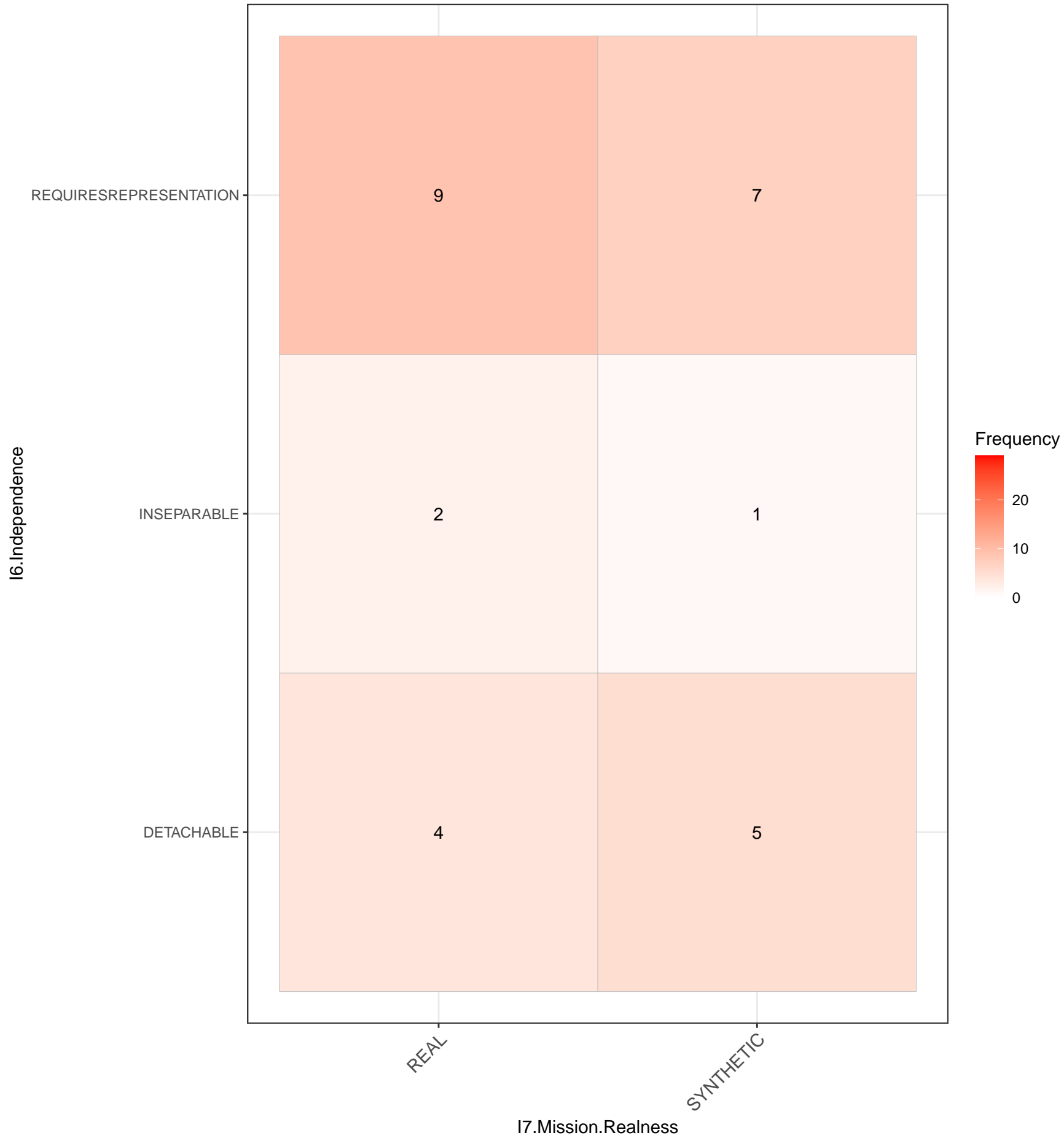




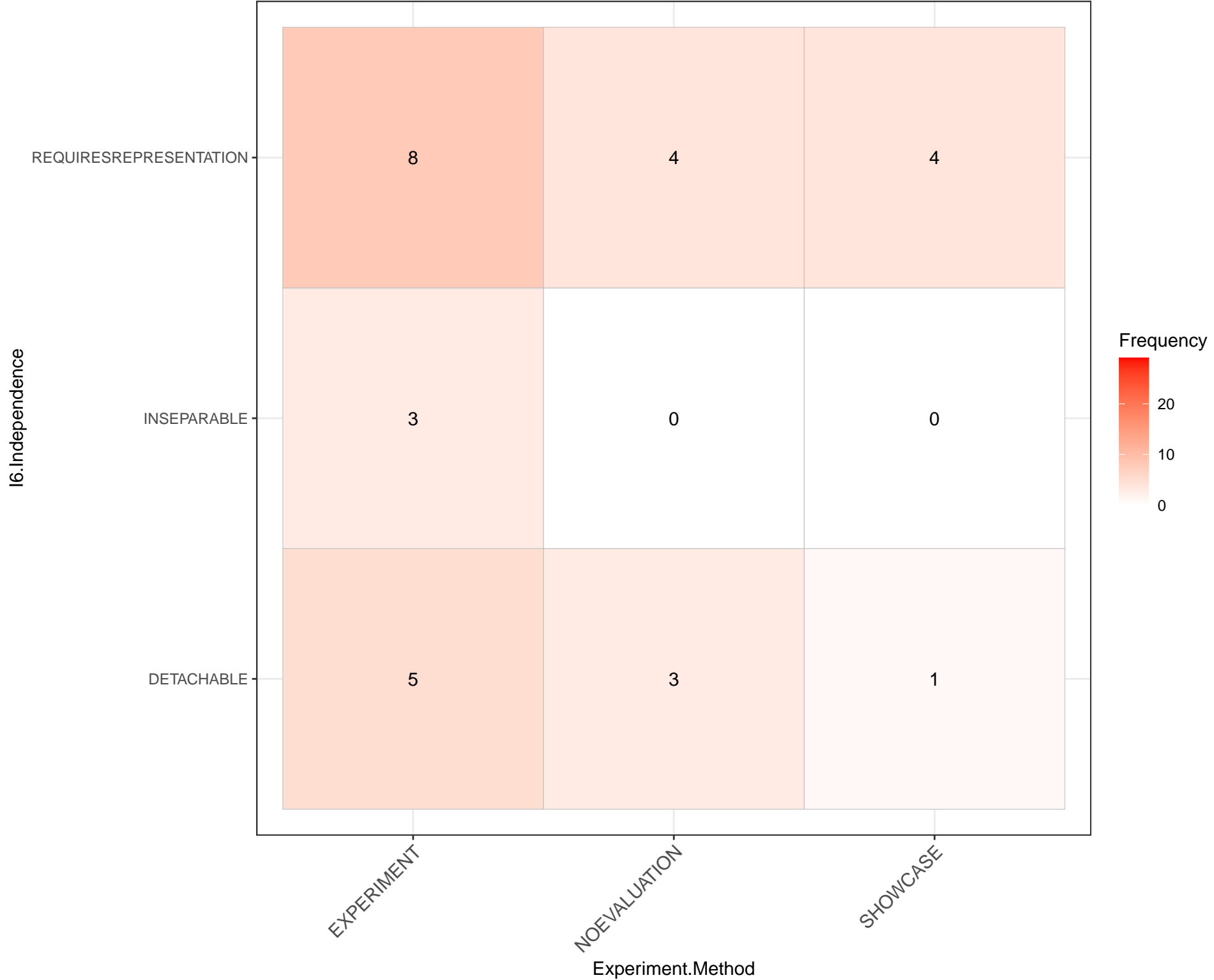
I6.Independence_____I7.Deployment.Realness

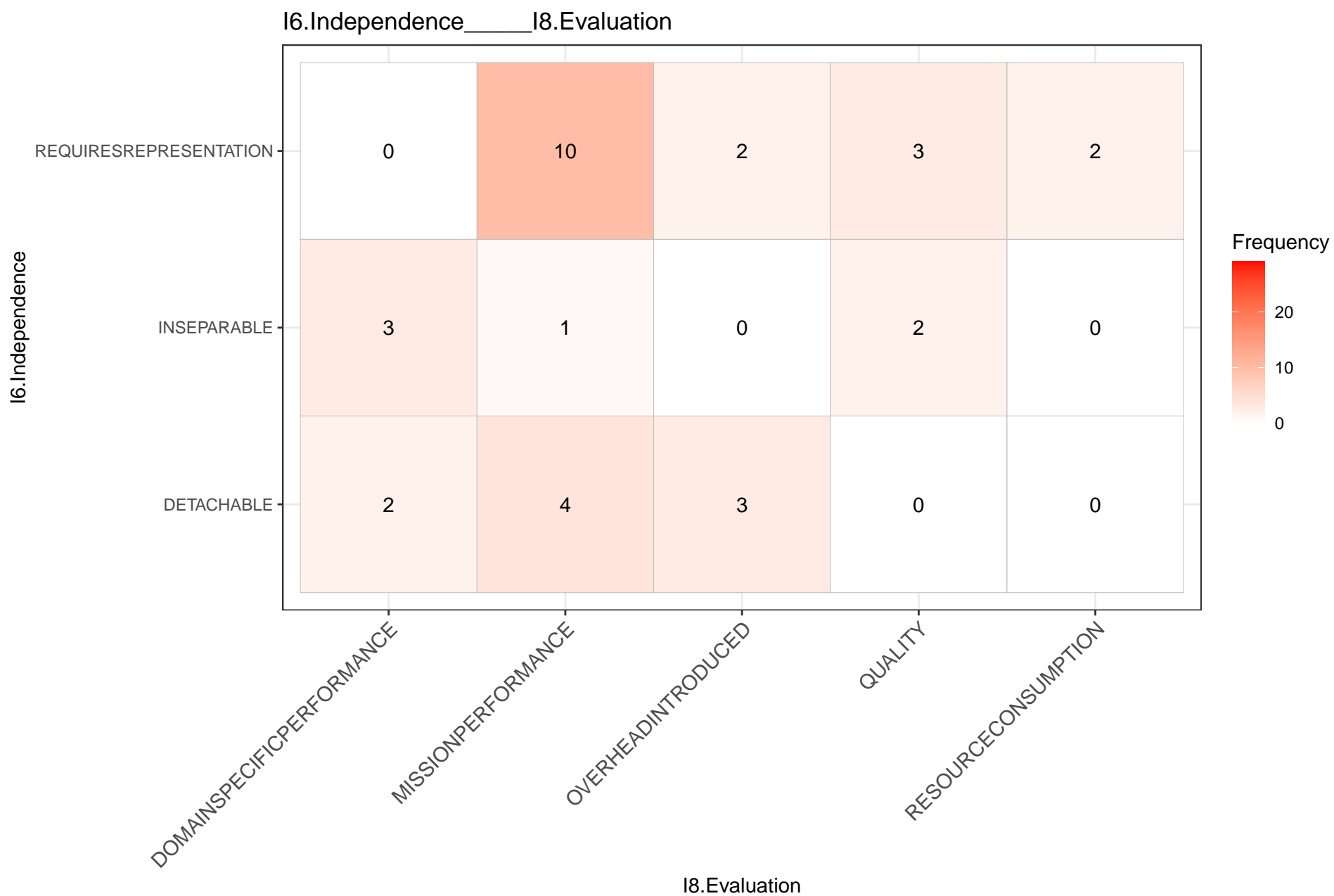


I6.Independence_____I7.Mission.Realness

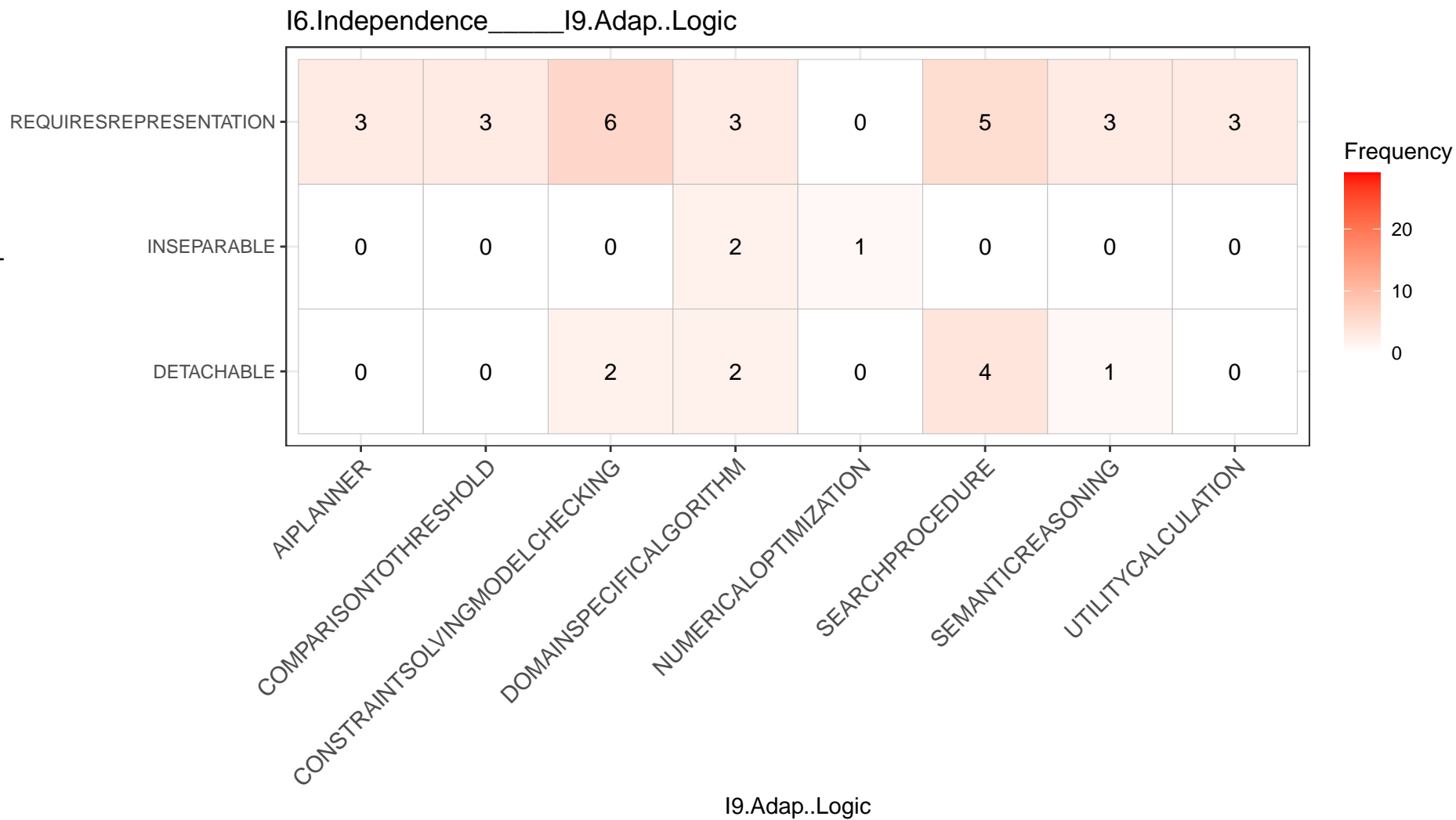


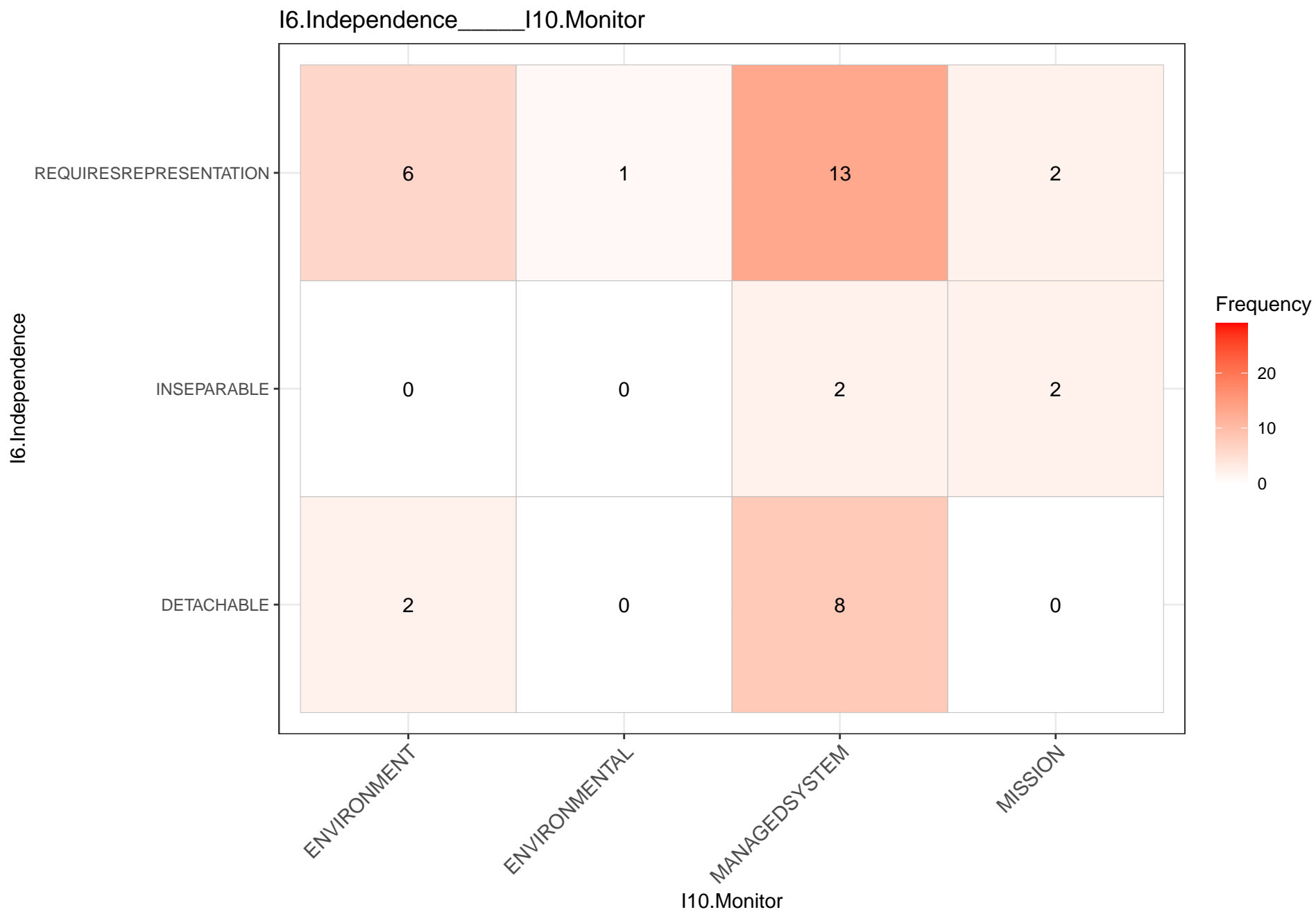
I6.Independence_____Experiment.Method





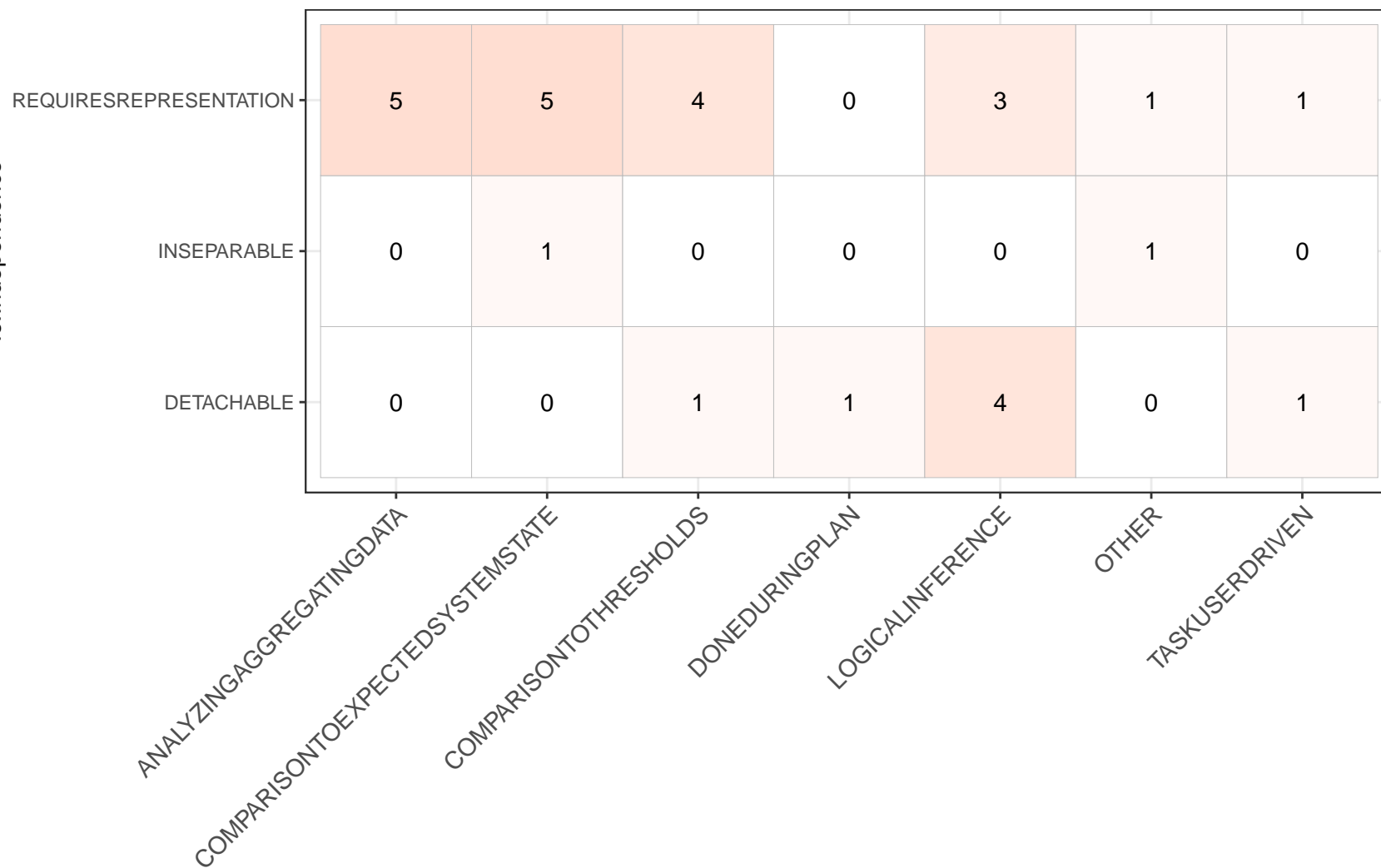
I6.Independence





I6. Independence

I6.Independence_____I11.Analyze



I11.Analyze

I6.Independence_____I12.Plan

I6.Independence

REQUIRESREPRESENTATION

INSEPARABLE

DETACHABLE

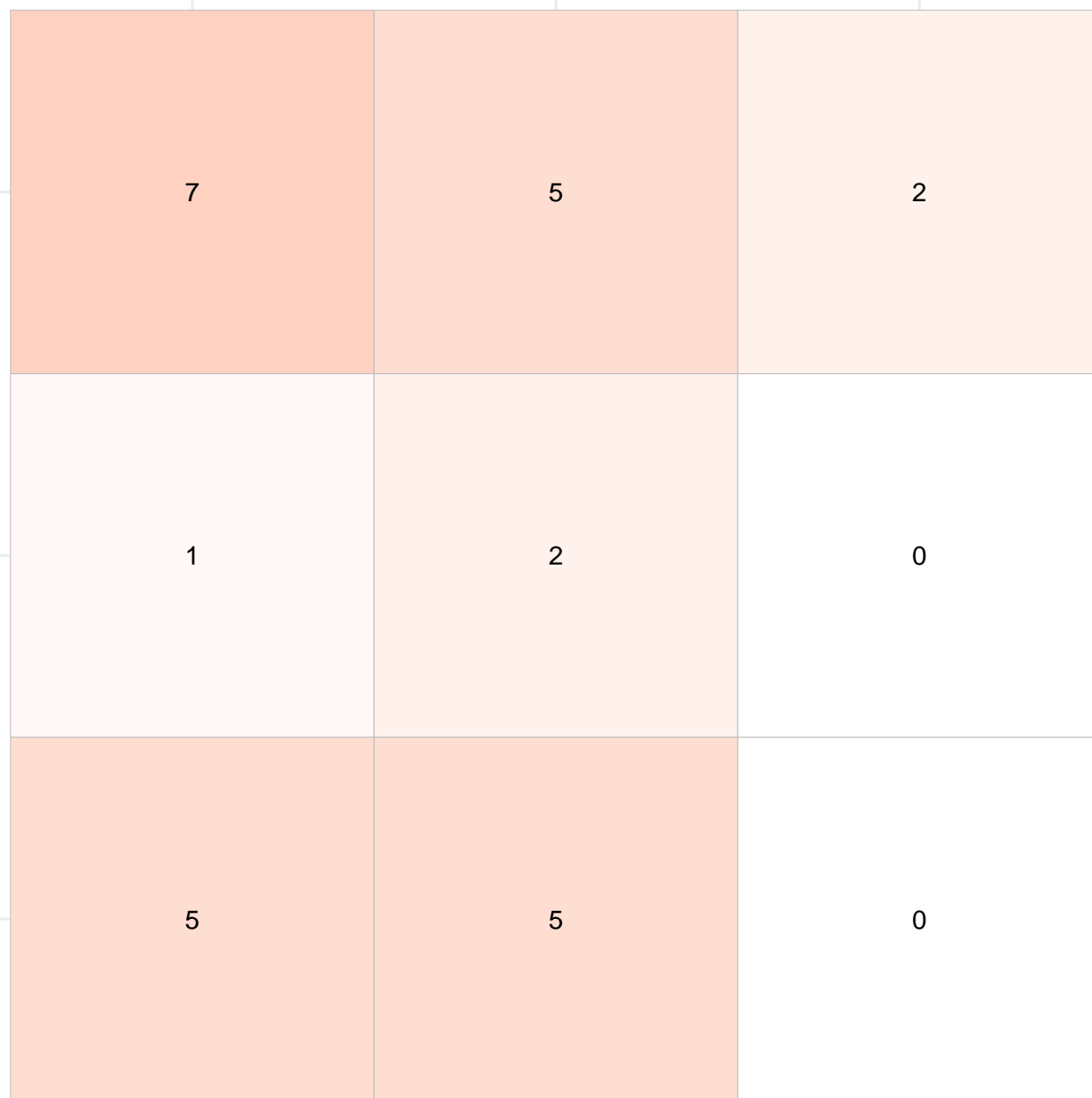
DETERMININGTHEOPTIMALCHOICE

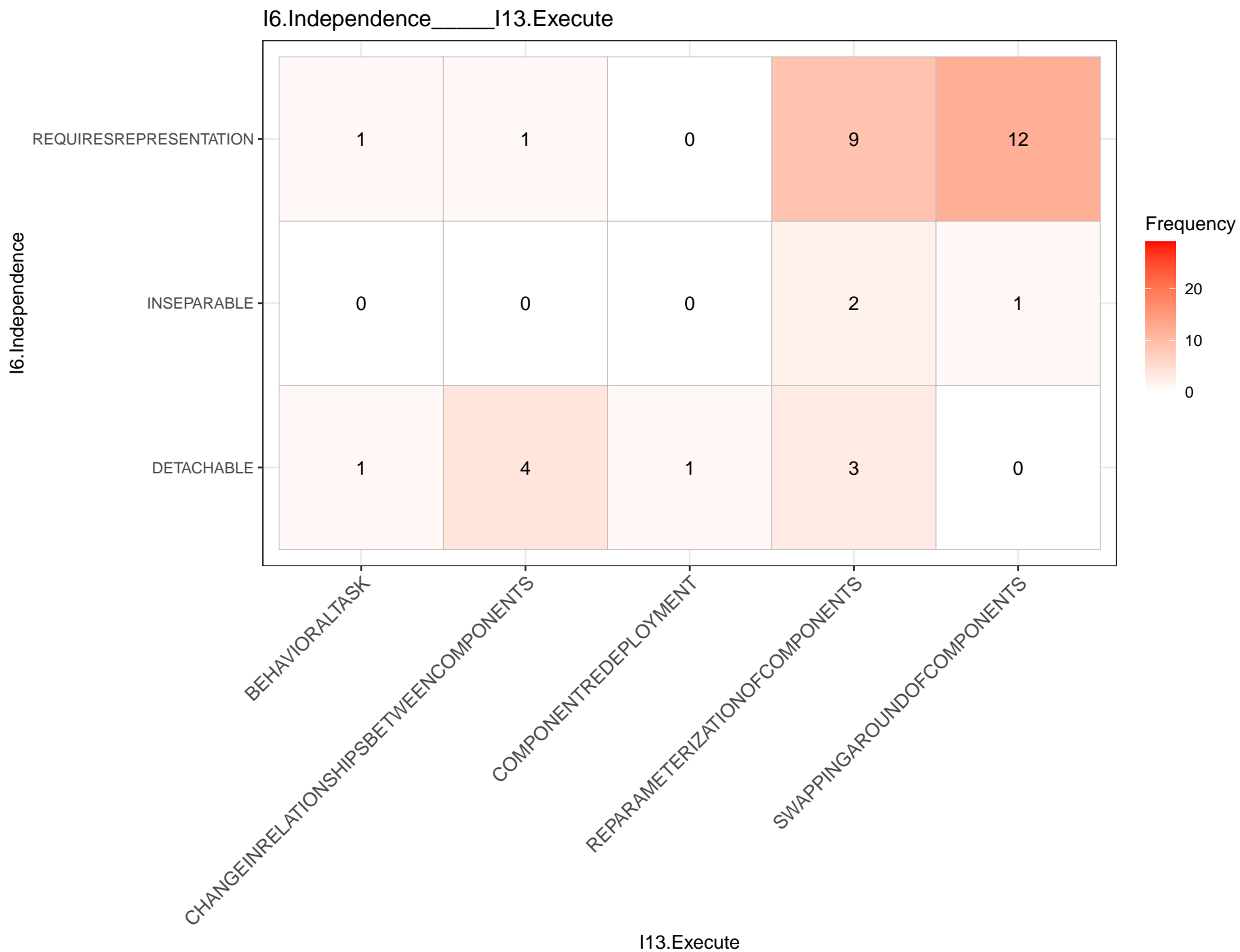
RELYINGONDESIGNTIMERULESMODELS

USINGAIPANNINGLANGUAGES

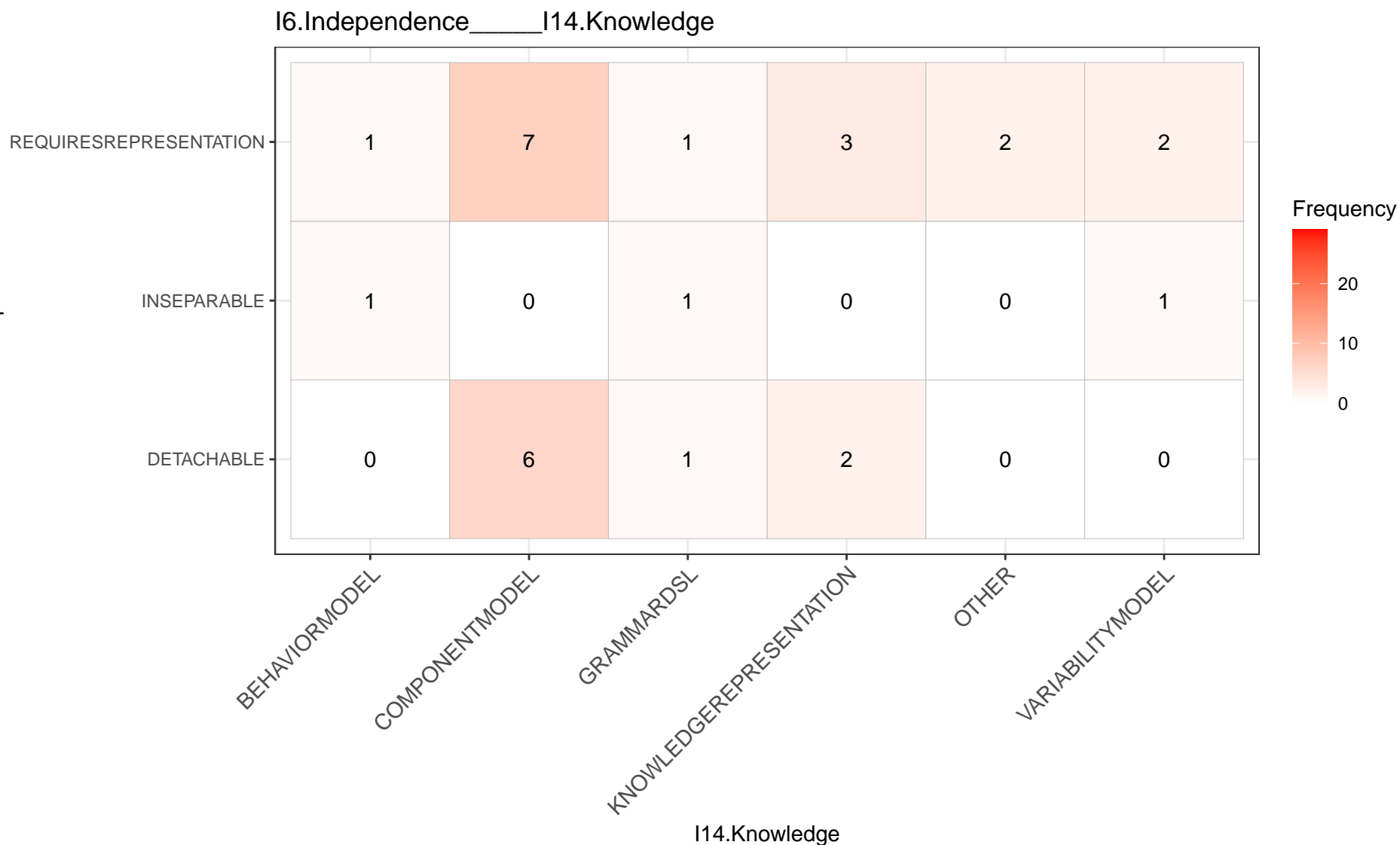
I12.Plan

Frequency





I6.Independence



I7.Deployment.Realness_____I7.Mission.Realness

I7.Deployment.Realness

SIMULATED

6

4

REAL

6

8

REAL

SYNTHETIC

I7.Mission.Realness

Frequency



20

10

0

I7.Deployment.Realness_____Experiment.Method

I7.Deployment.Realness

SIMULATED

REAL

EXPERIMENT

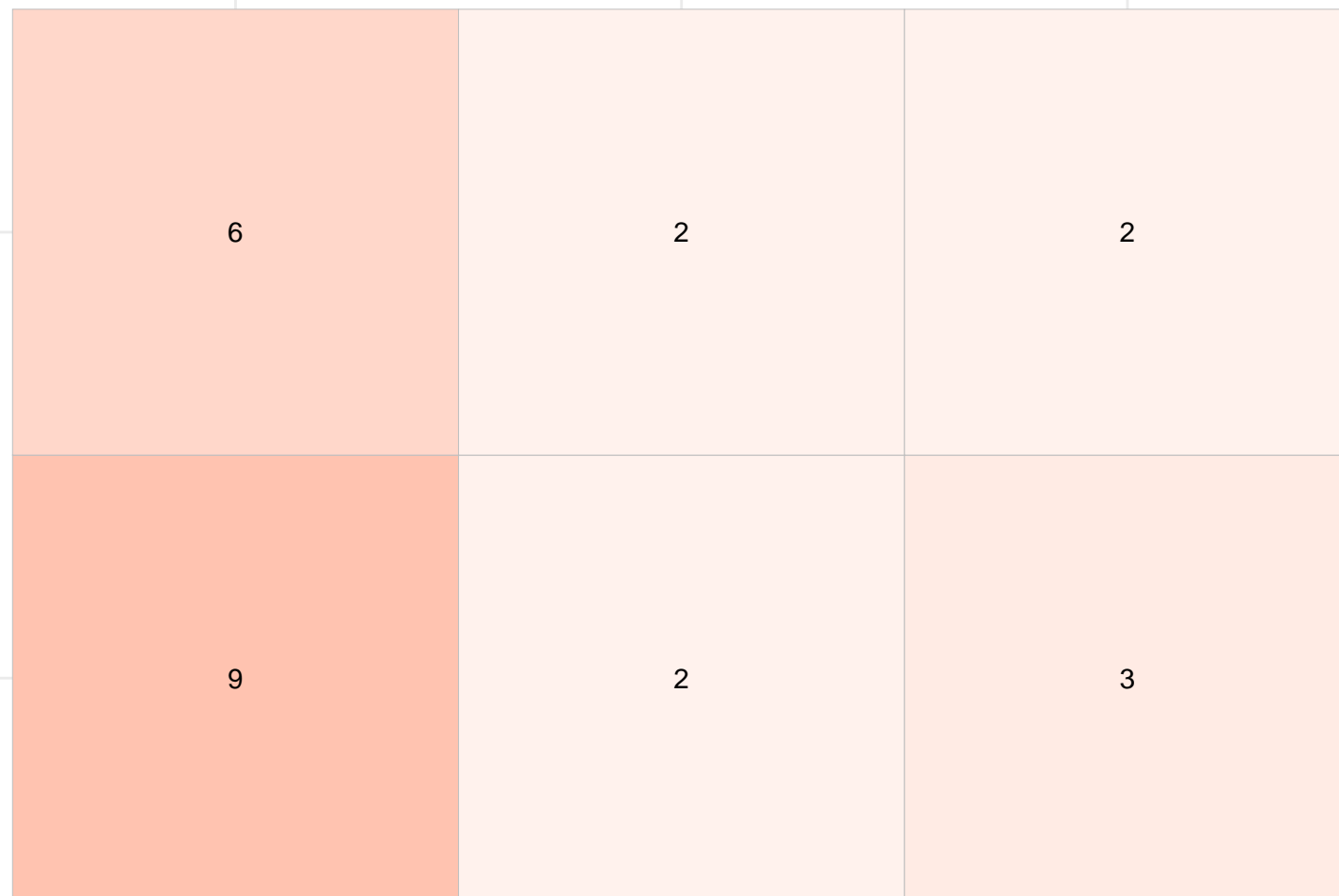
NOEVALUATION

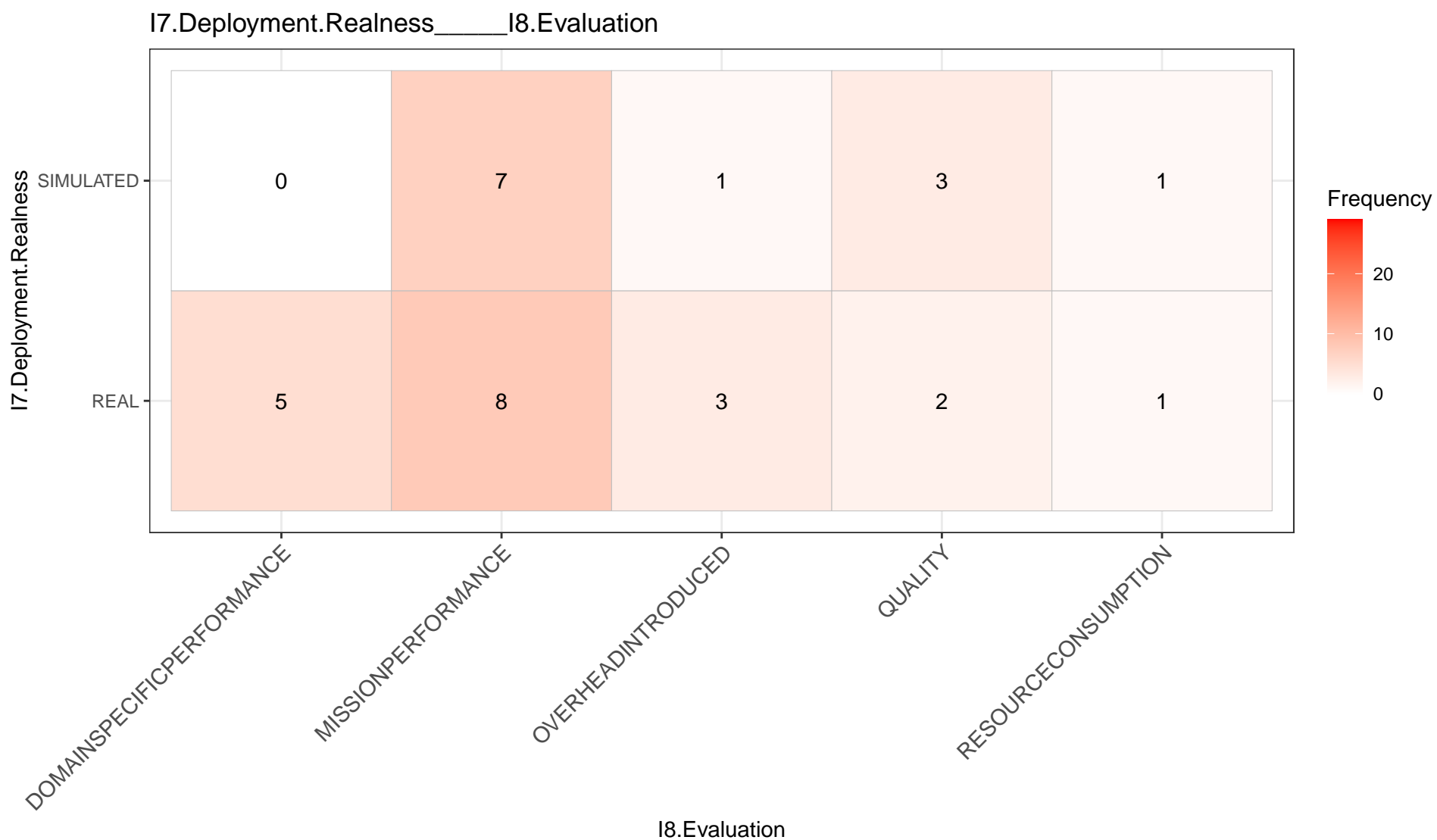
SHOWCASE

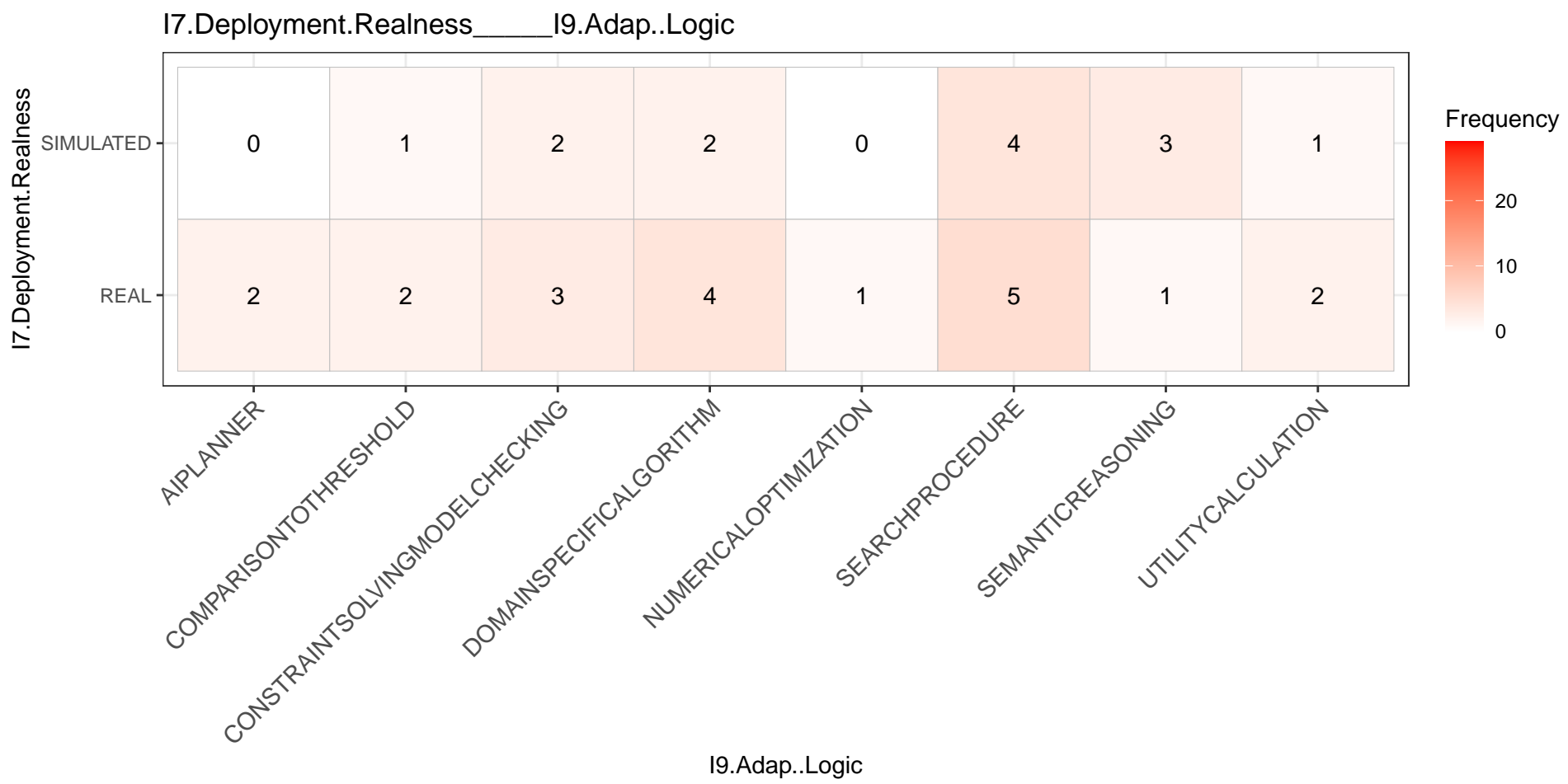
Experiment.Method

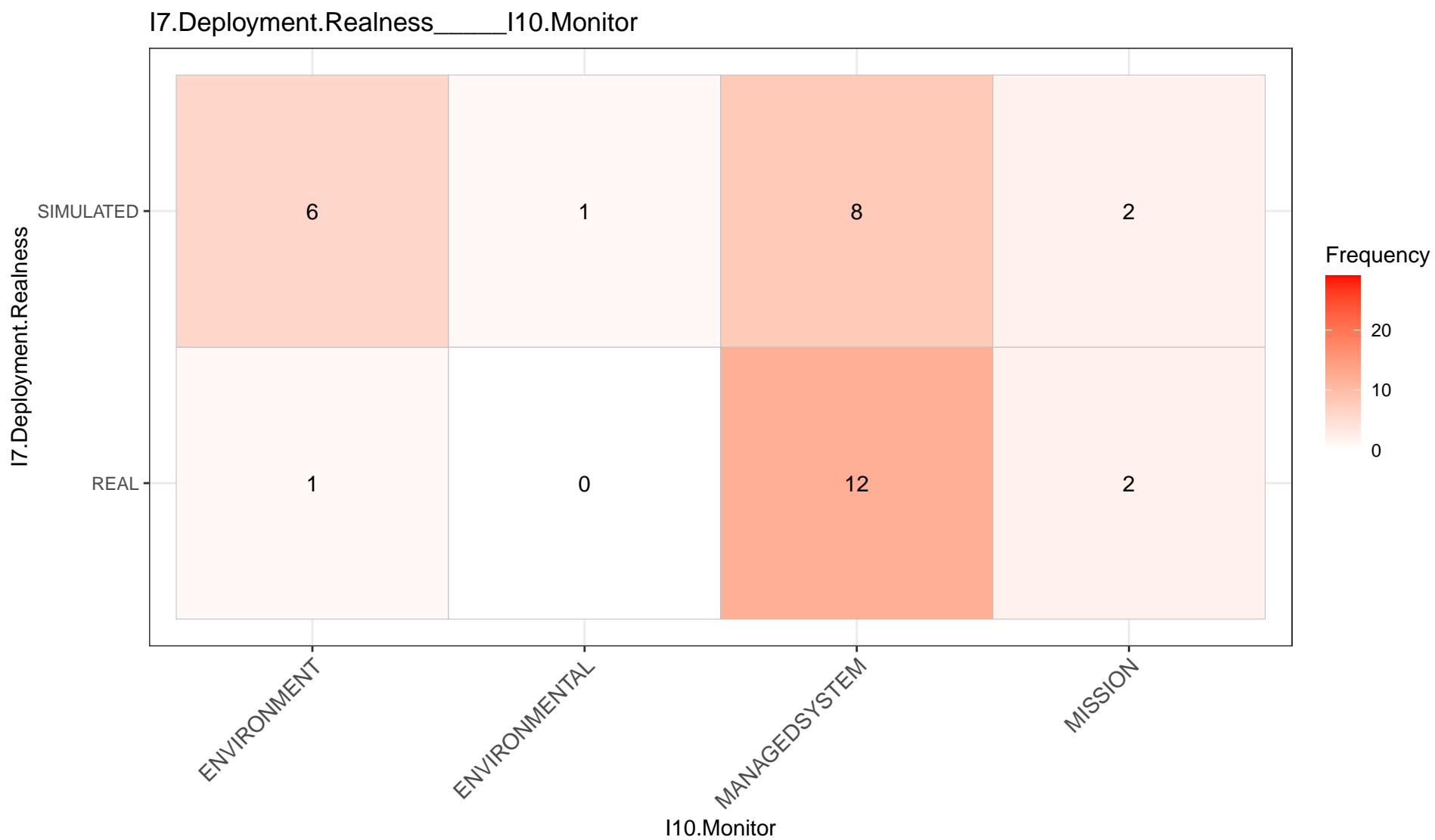
Frequency

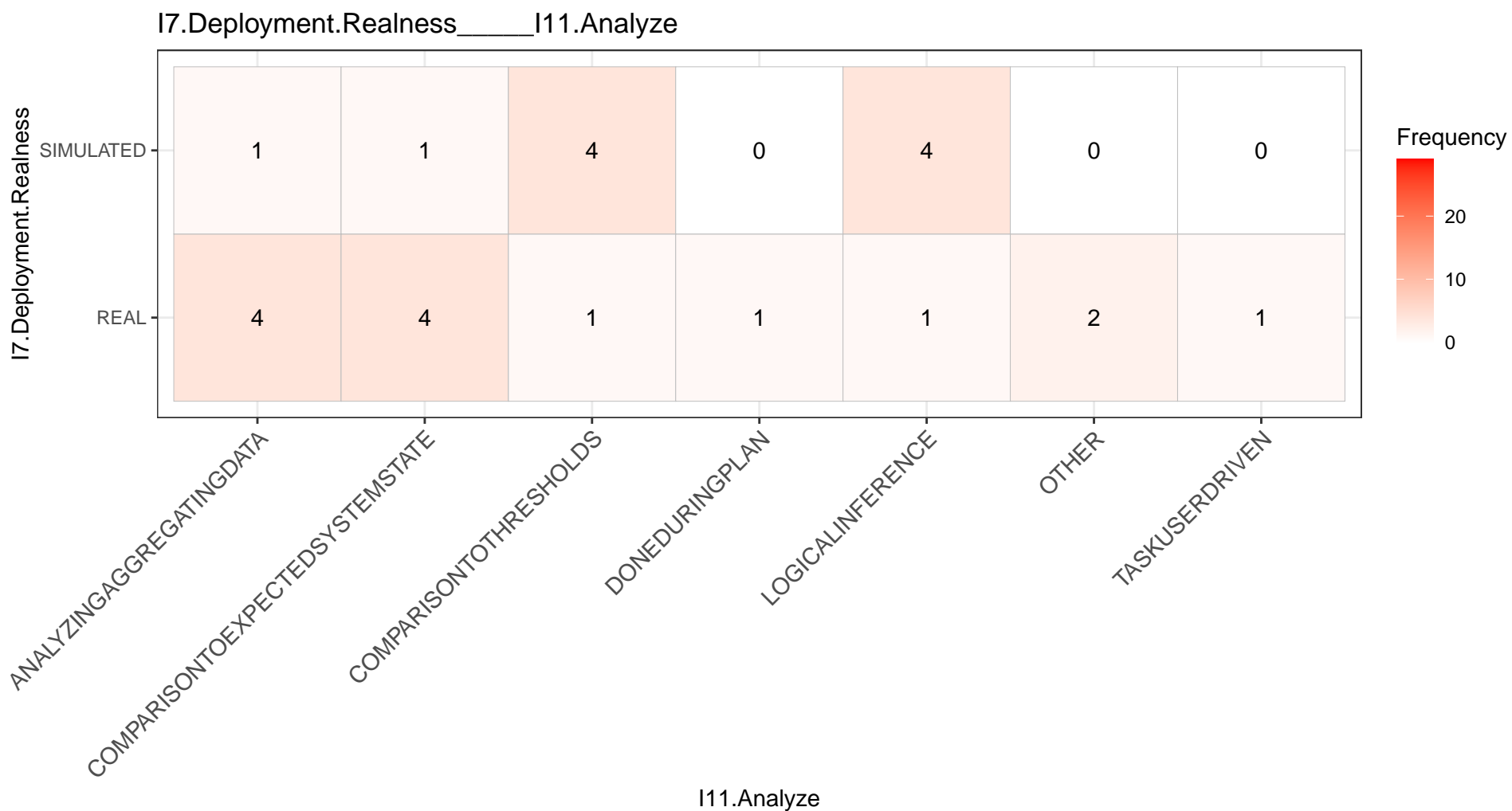
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10
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I7.Deployment.Realness_____I12.Plan

I7.Deployment.Realness

SIMULATED

REAL

DETERMININGTHEOPTIMALCHOICE

RELYINGONDESIGNTIMERULESMODELS

USINGAIPANNINGLANGUAGES

I12.Plan

Frequency



20

10

0

5

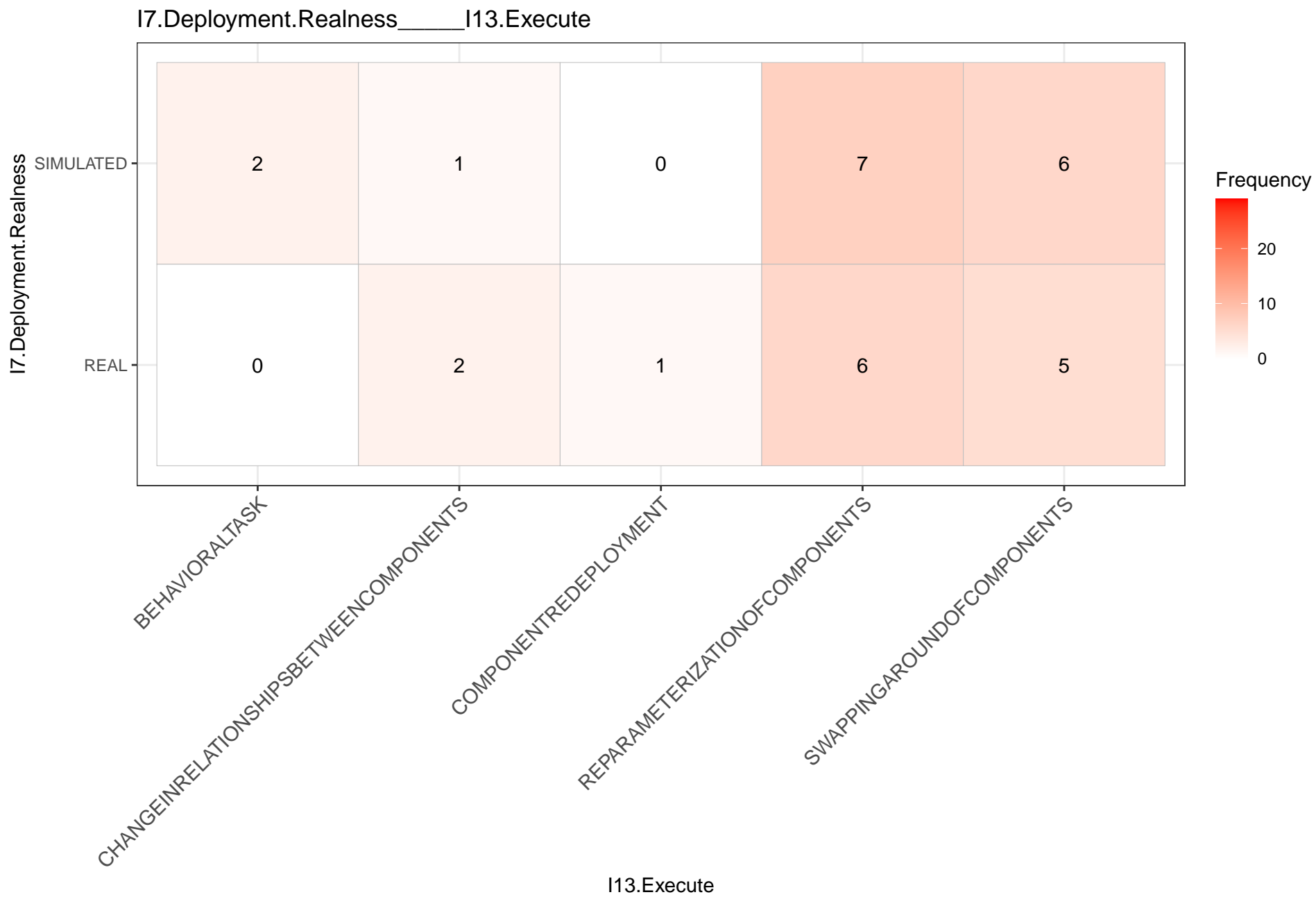
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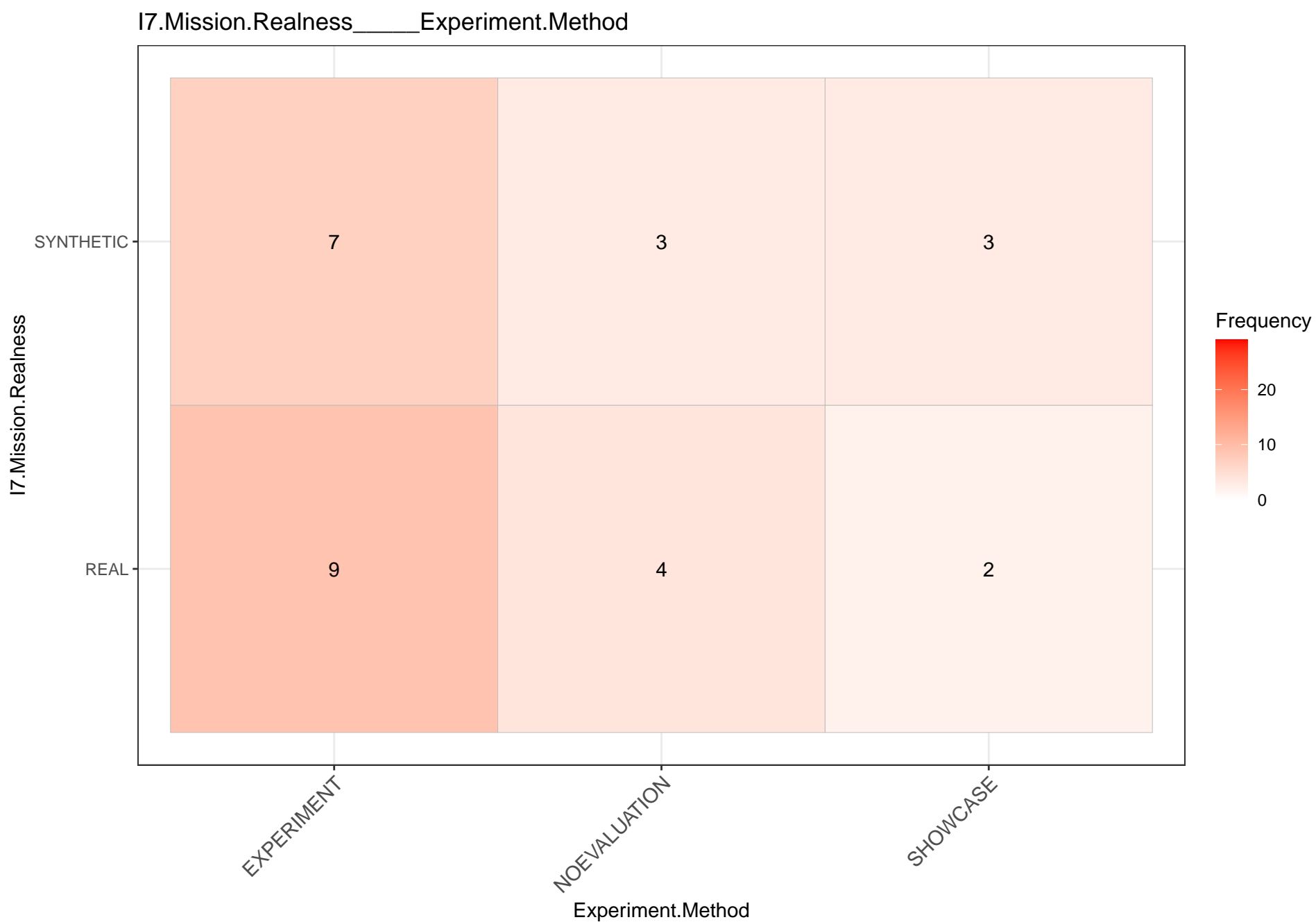
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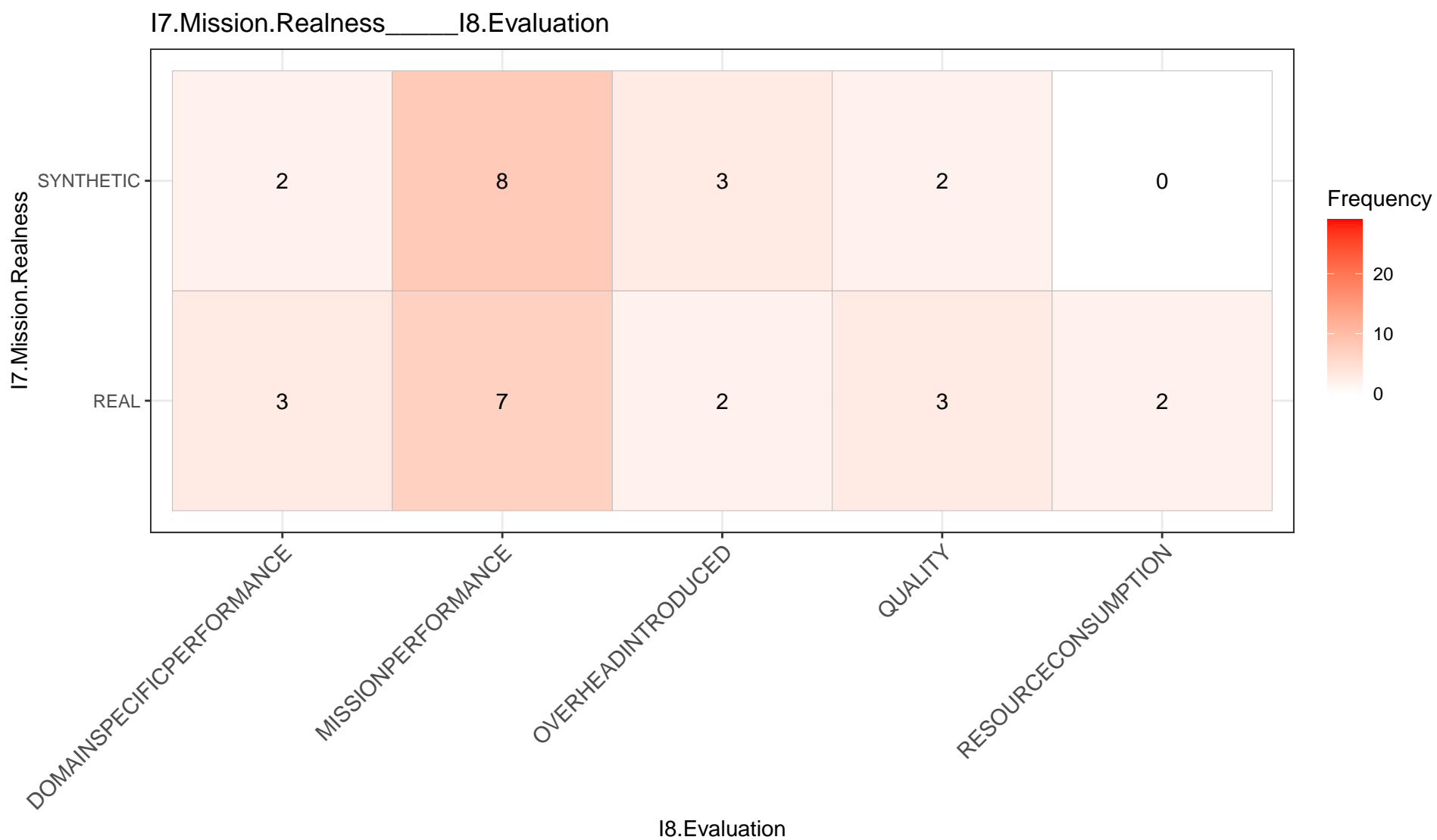
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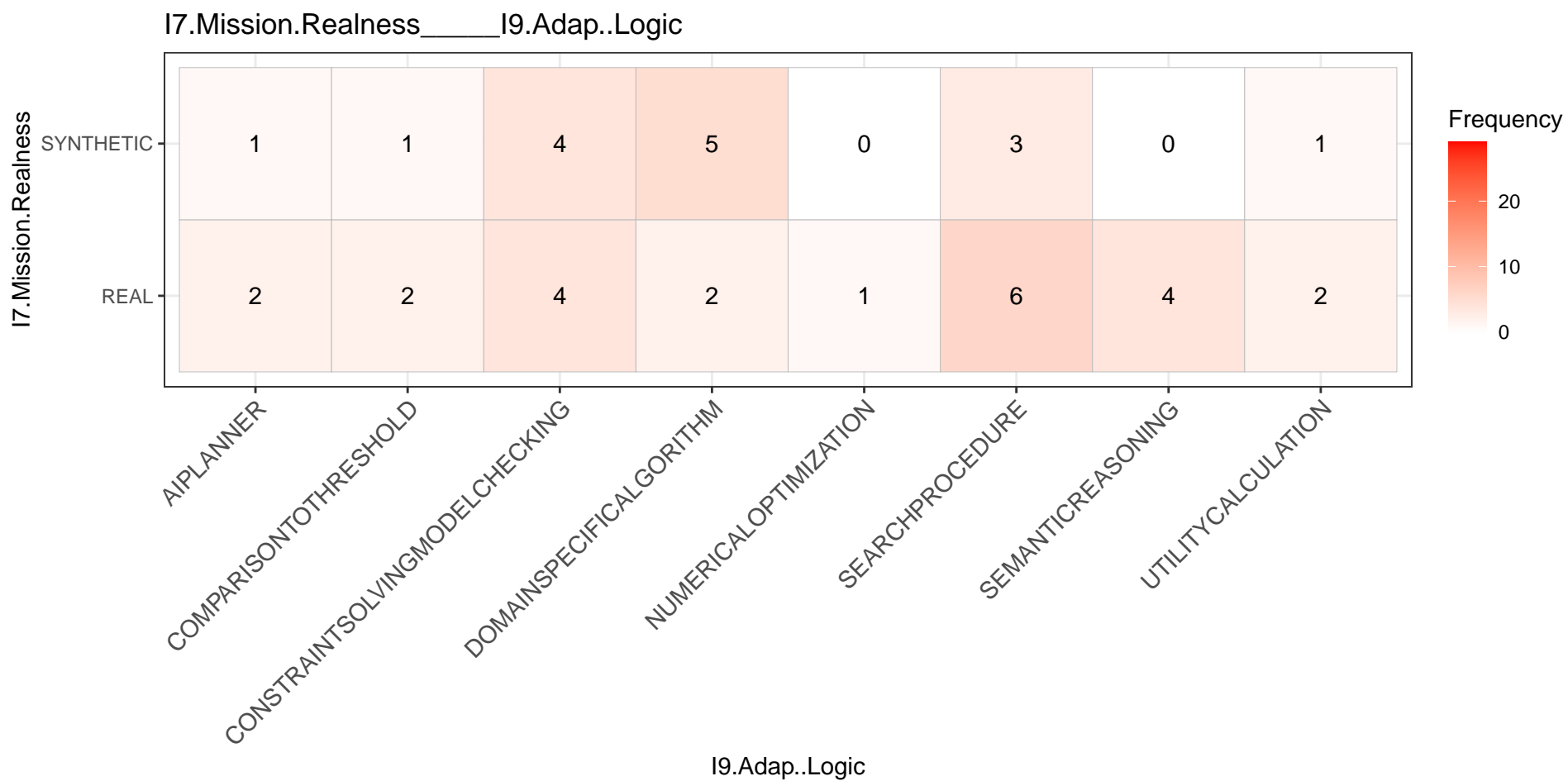
2











I7.Mission.Realness

I7.Mission.Realness____I10.Monitor

SYNTHETIC

3

1

12

2

REAL

5

0

11

2

ENVIRONMENT

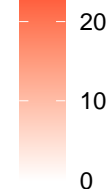
ENVIRONMENTAL

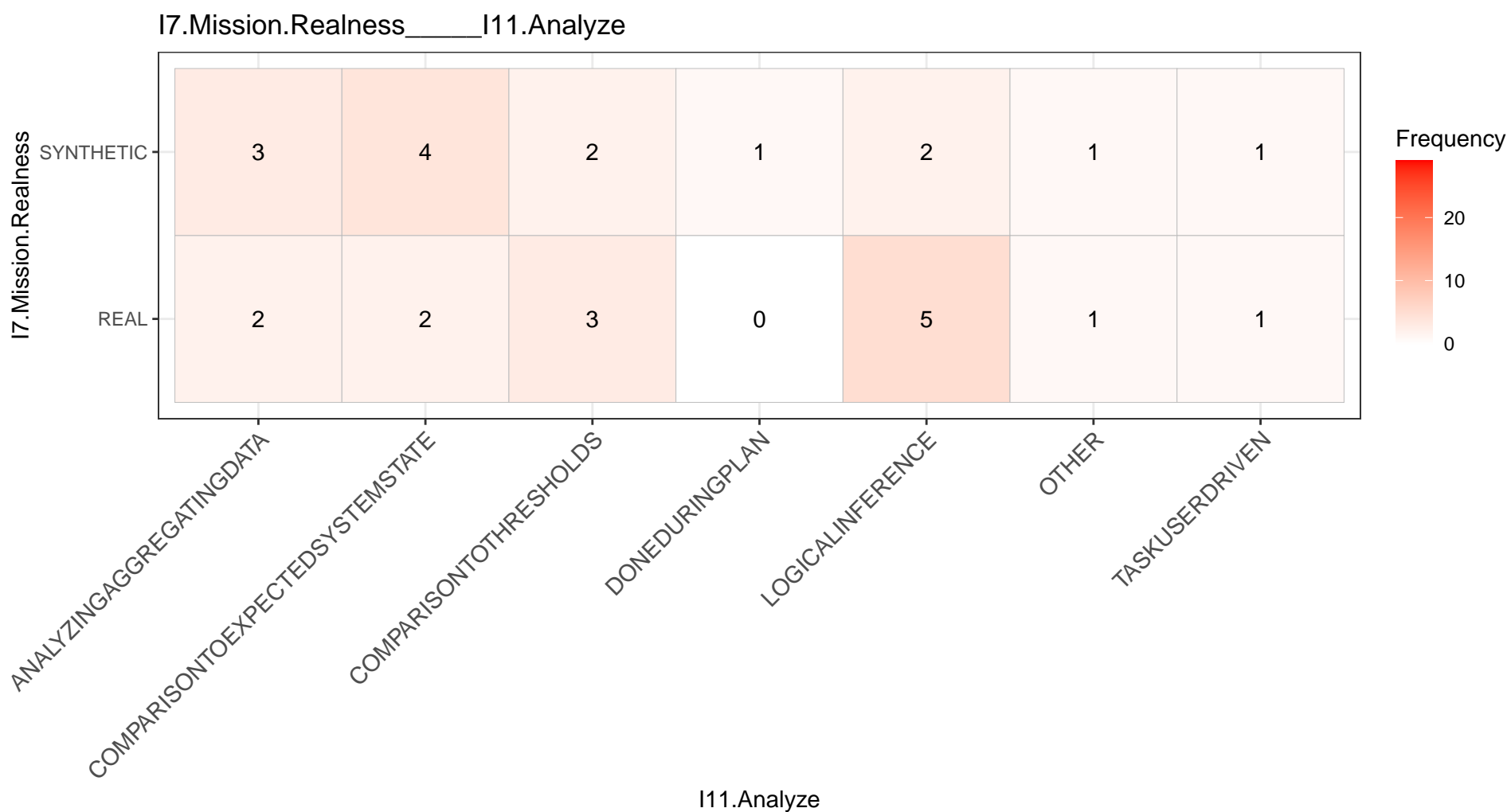
I10.Monitor

MANAGEDSYSTEM

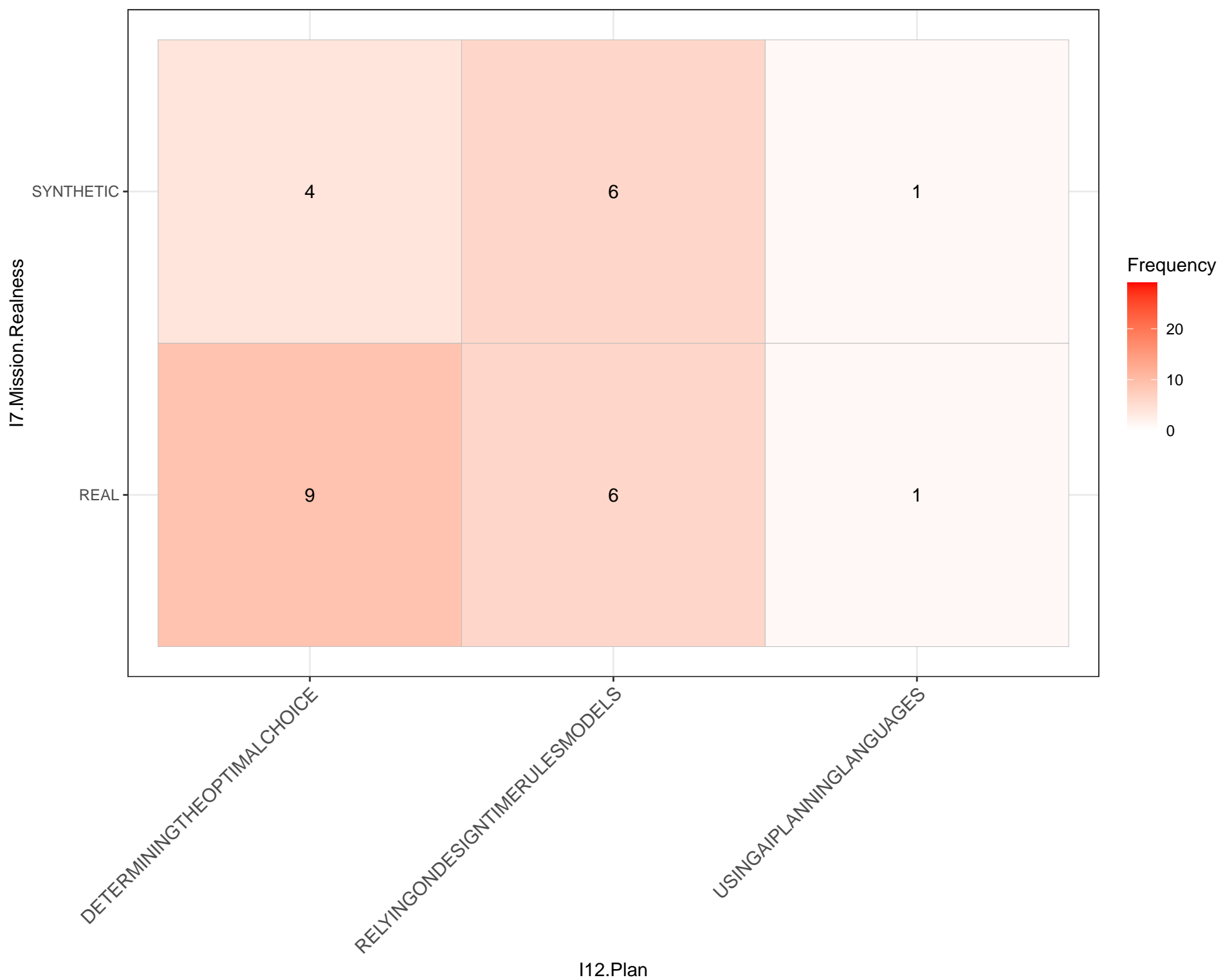
MISSION

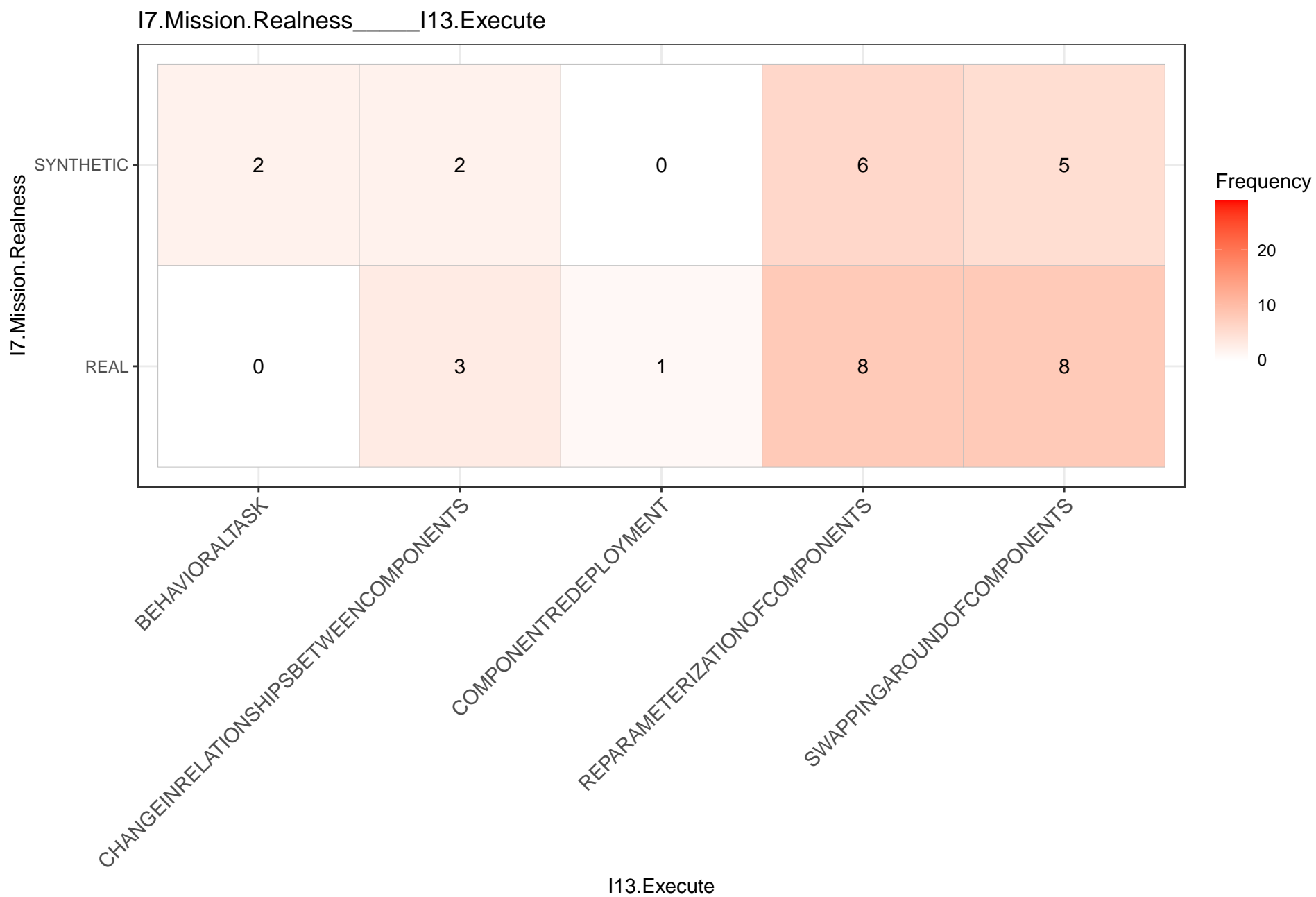
Frequency

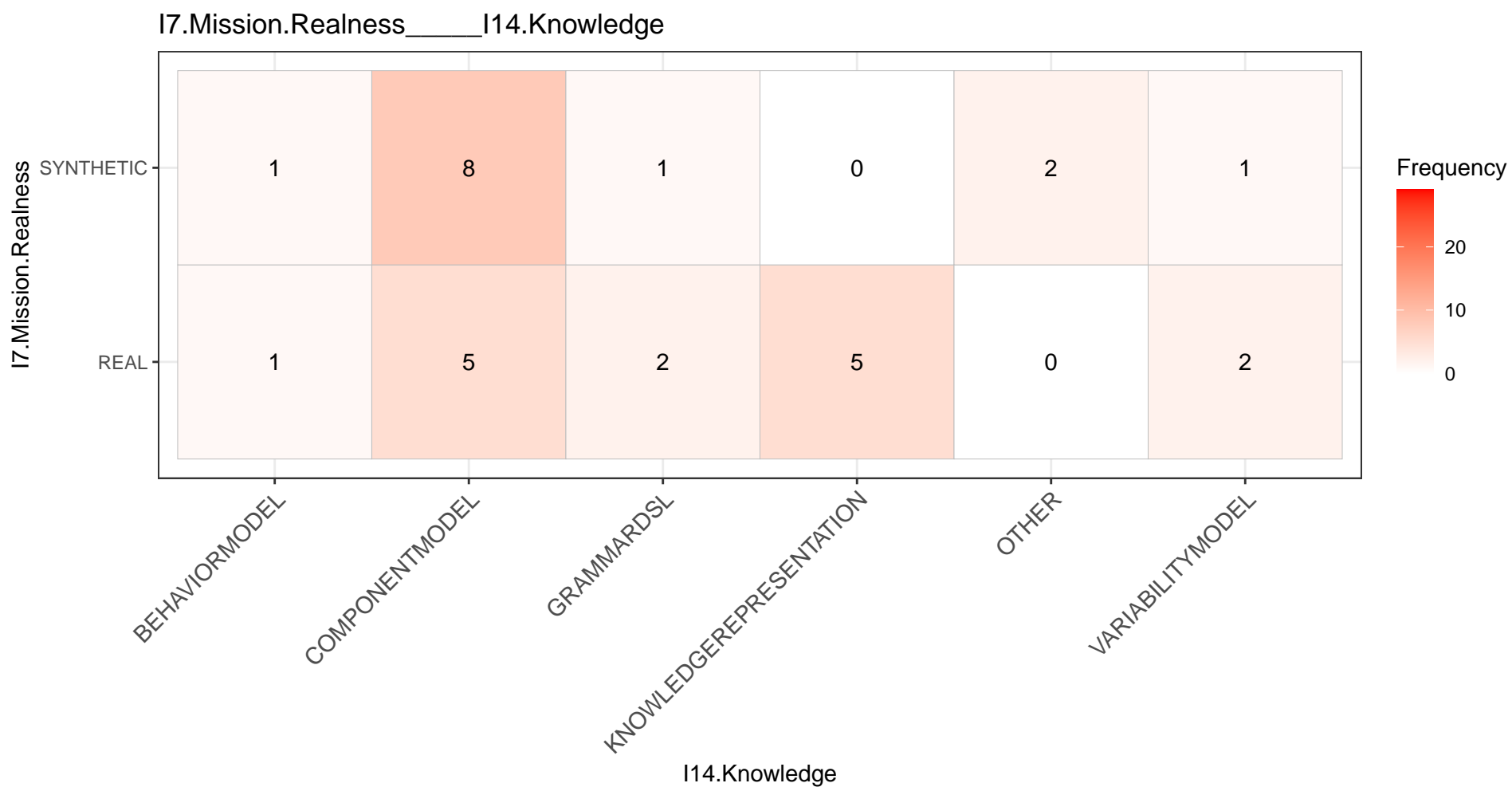




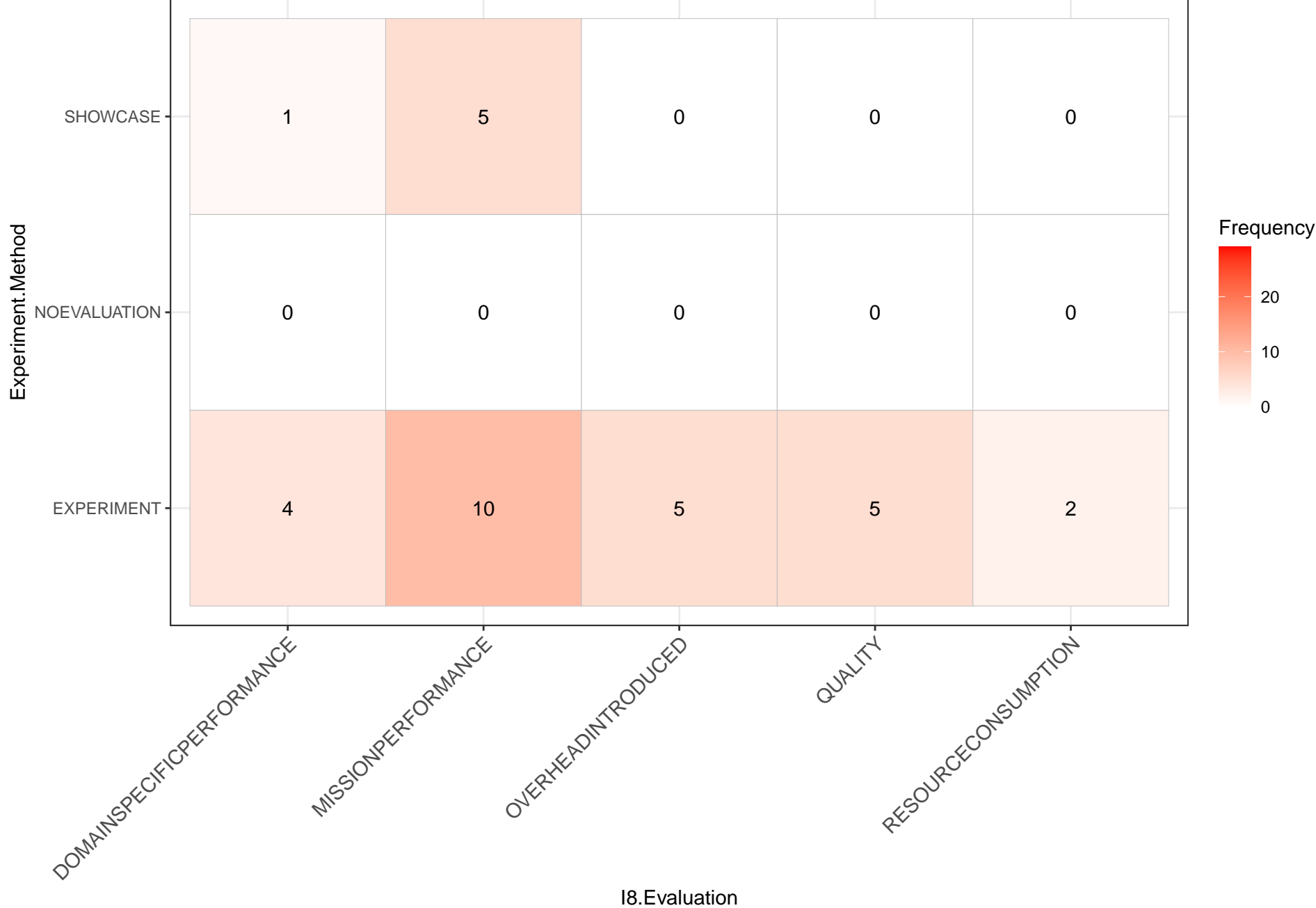
I7.Mission.Realness_____I12.Plan





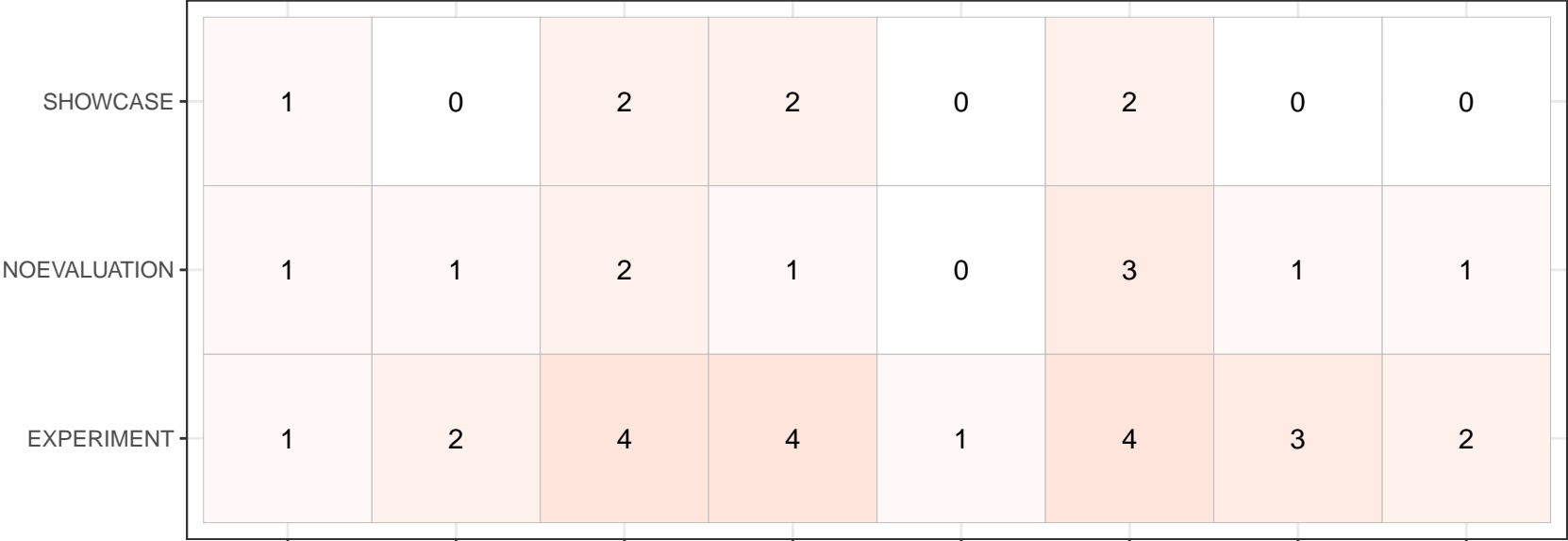


Experiment.Method_____I8.Evaluation



Experiment.Method_____I9.Adap..Logic

Experiment.Method



Frequency



AIPLANNER
COMPARISONTOTHRESHOLD
CONSTRAINTSOLVINGMODELCHECKING
DOMAINSPECIFICALGORITHM
NUMERICALOPTIMIZATION
SEARCHPROCEDURE
SEMANTICREASONING
UTILITYCALCULATION

I9.Adap..Logic

Experiment.Method____I10.Monitor

Experiment.Method

SHOWCASE

NOEVALUATION

EXPERIMENT

ENVIRONMENT

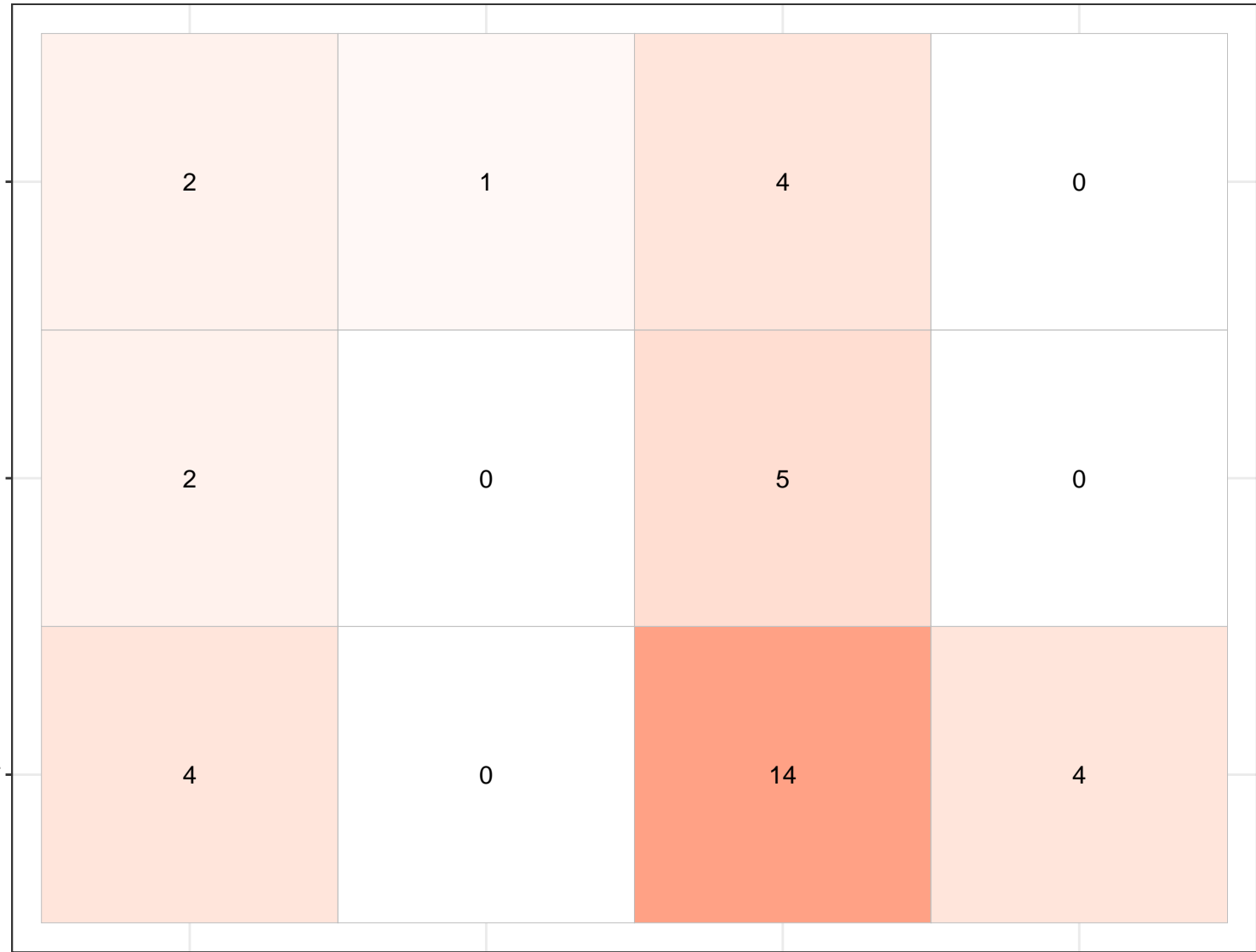
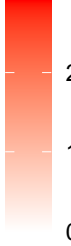
ENVIRONMENTAL

I10.Monitor

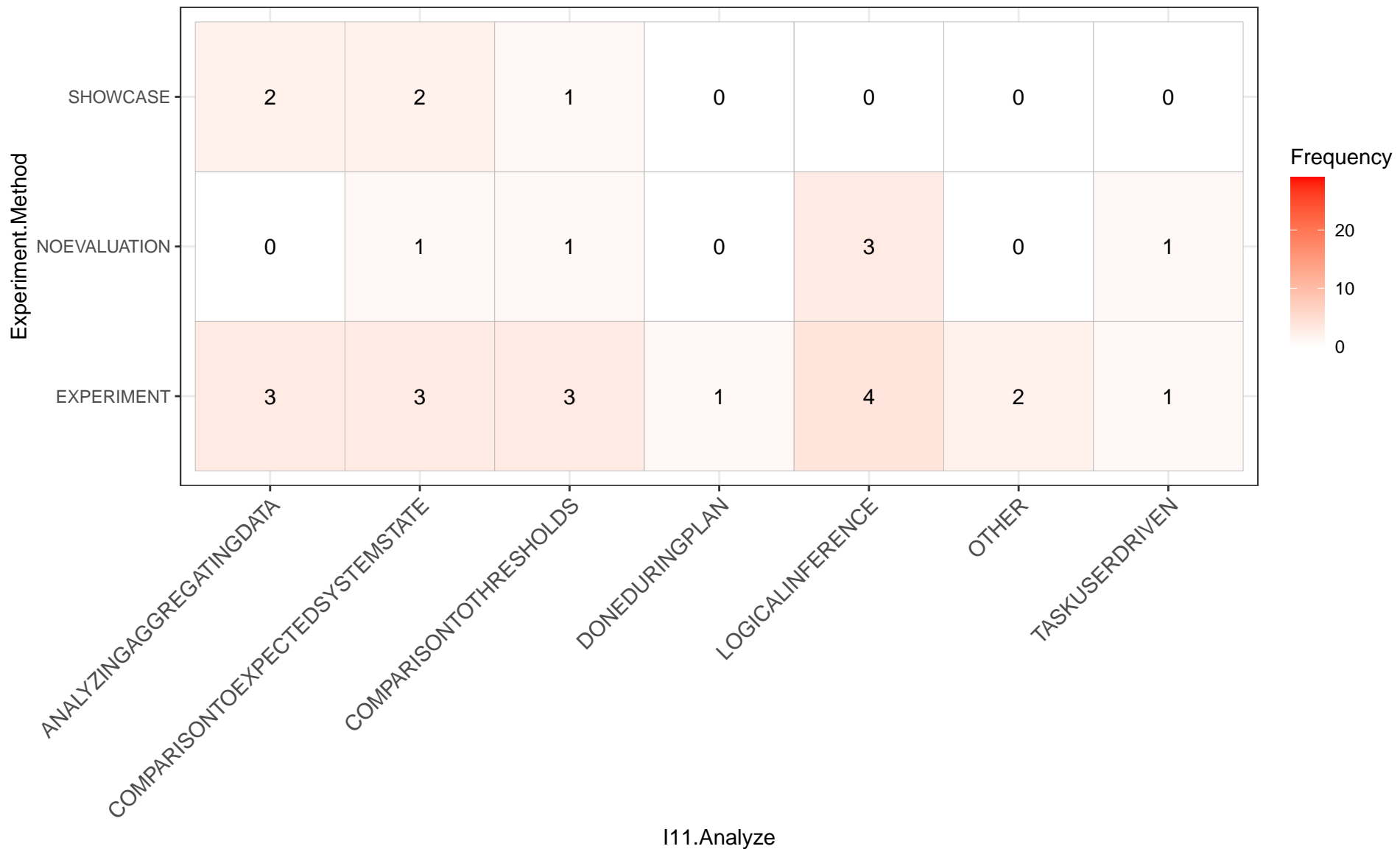
MANAGEDSYSTEM

MISSION

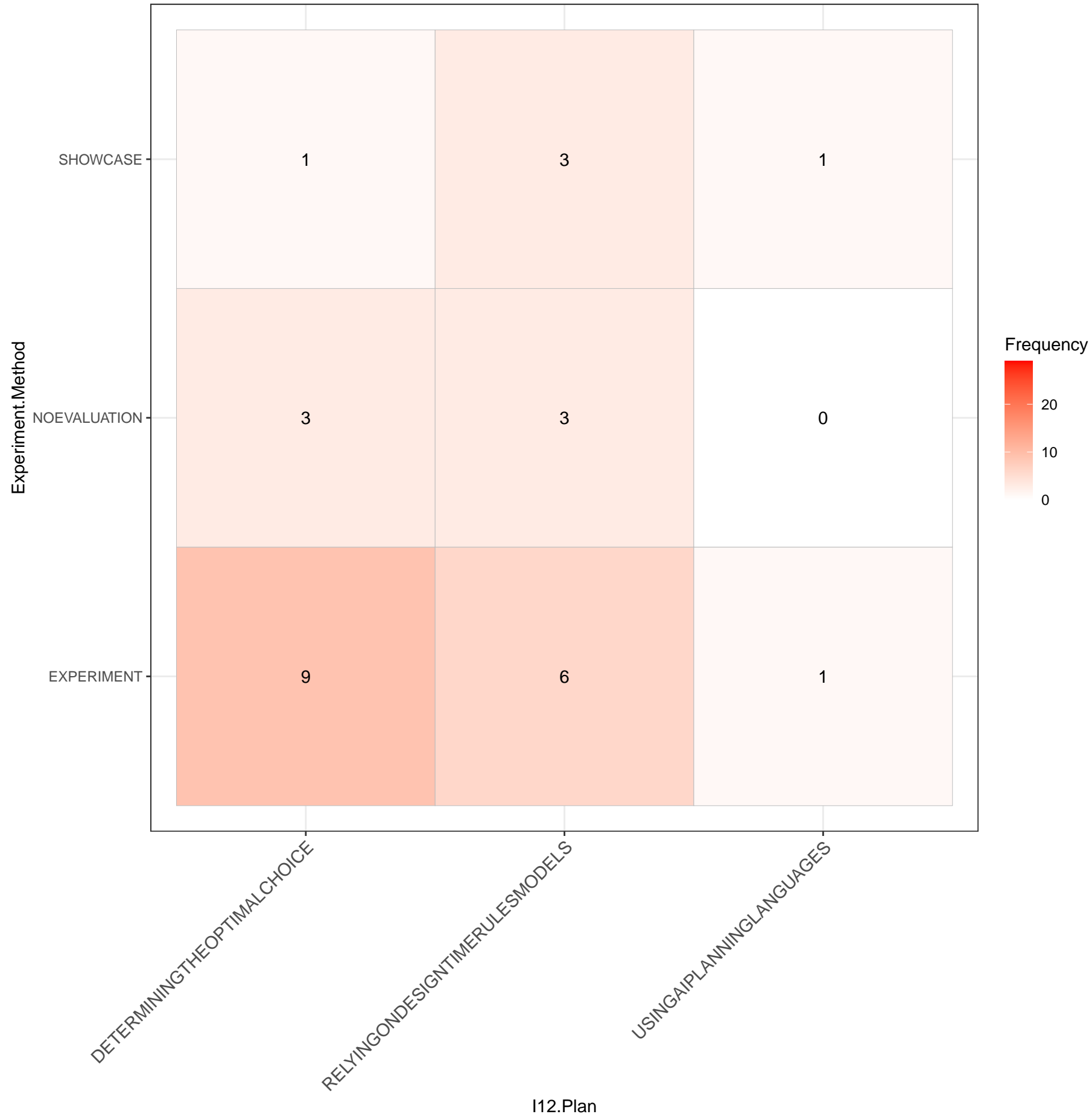
Frequency



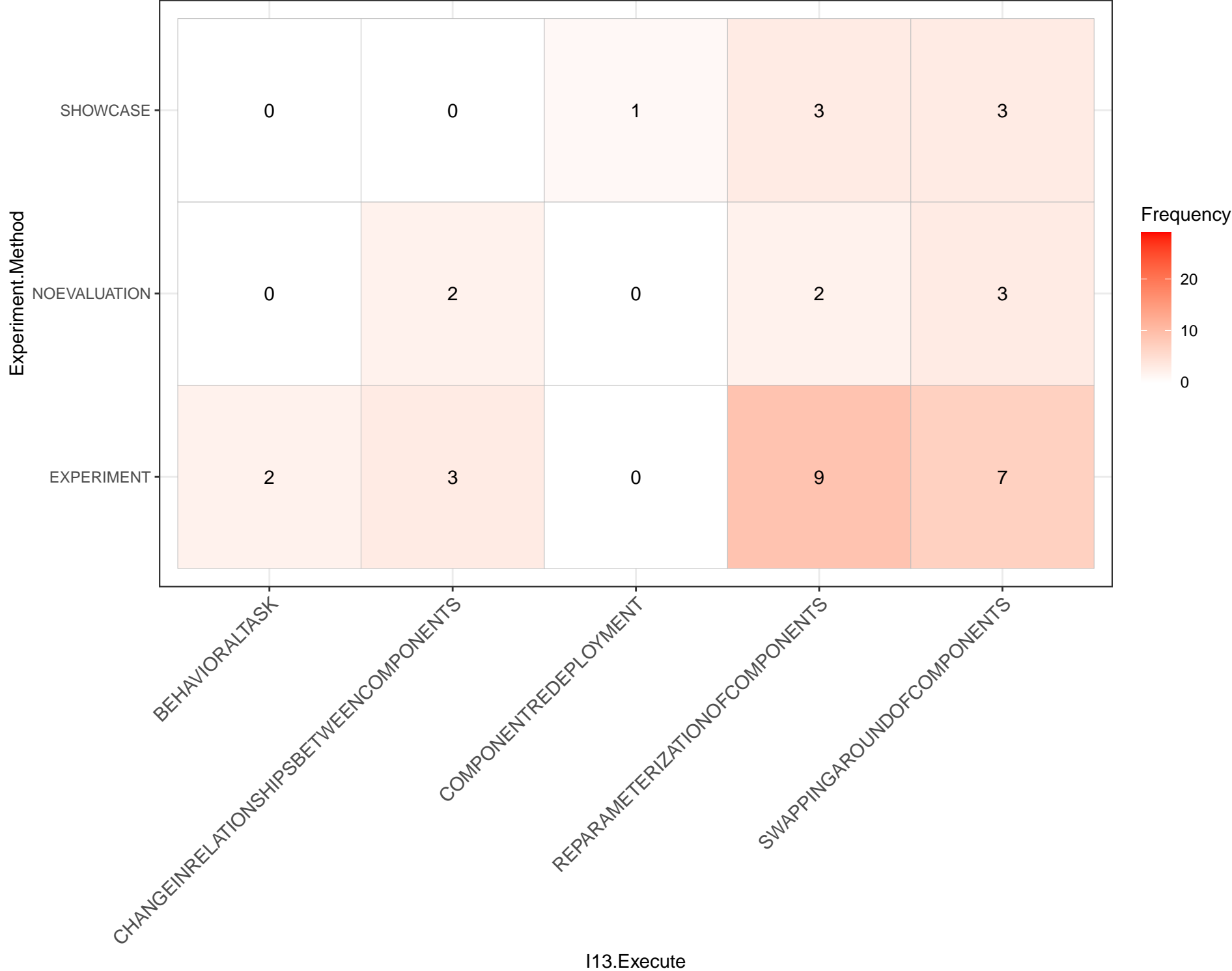
Experiment.Method_____I11.Analyze



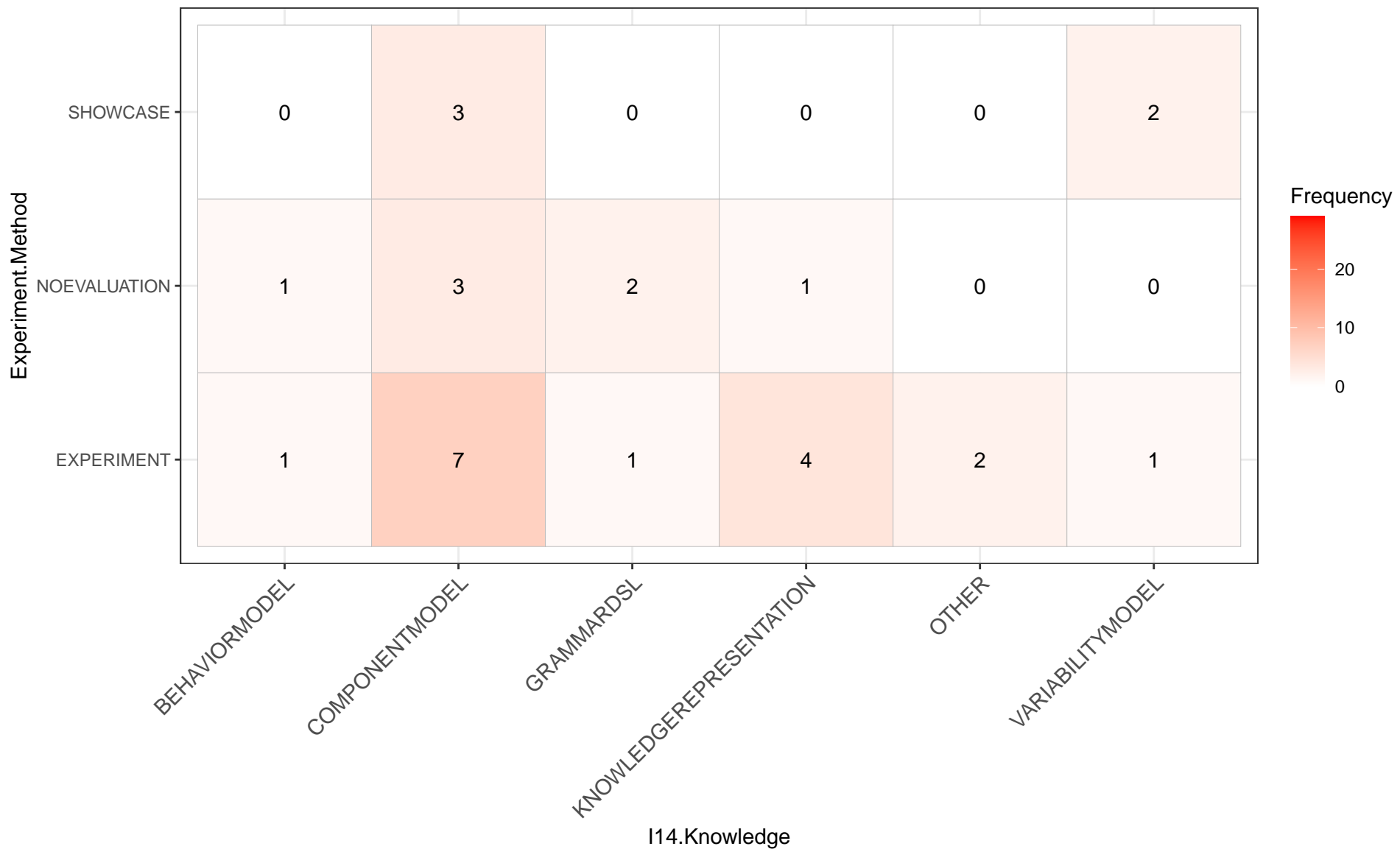
Experiment.Method_____I12.Plan

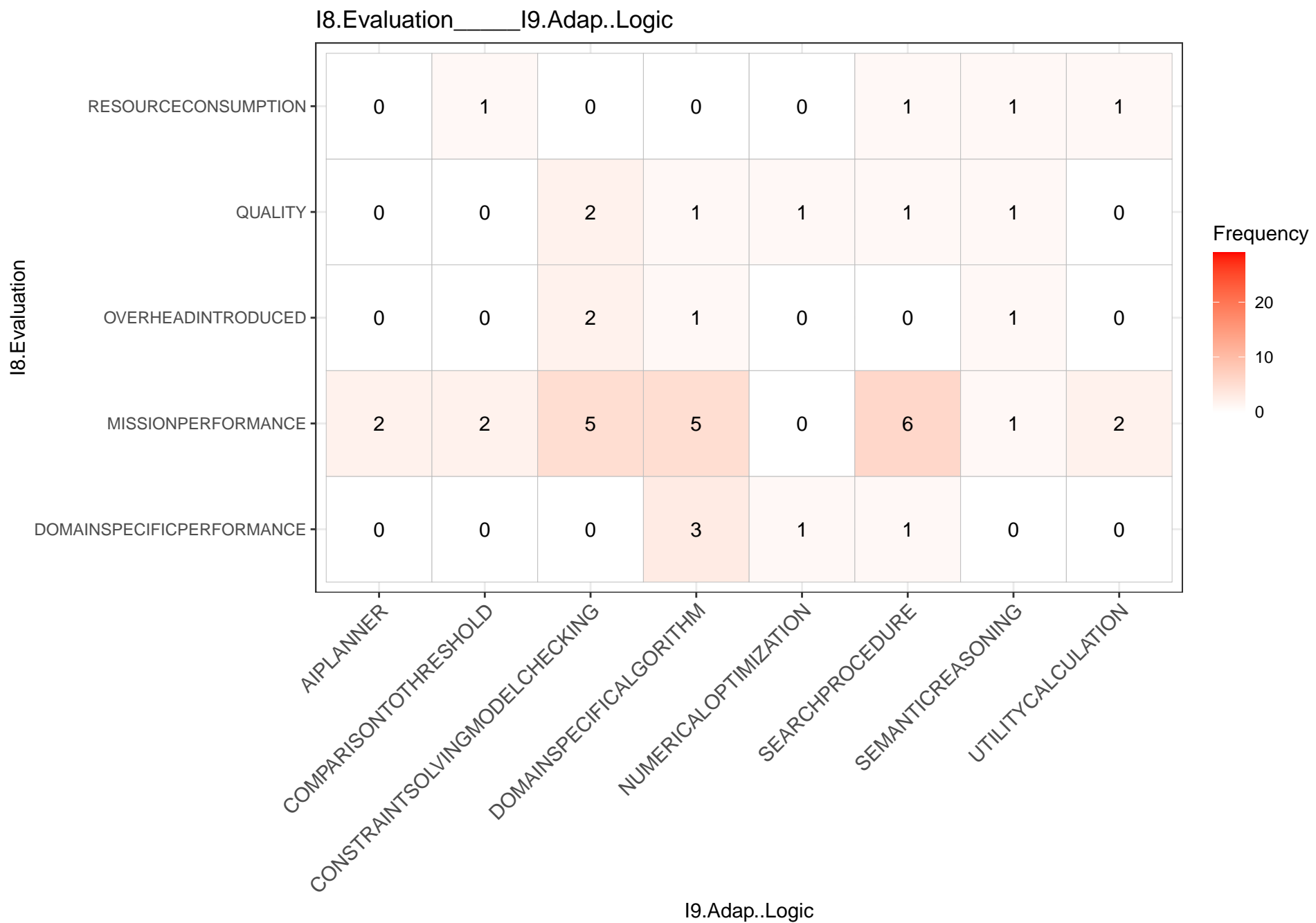


Experiment.Method_____I13.Execute



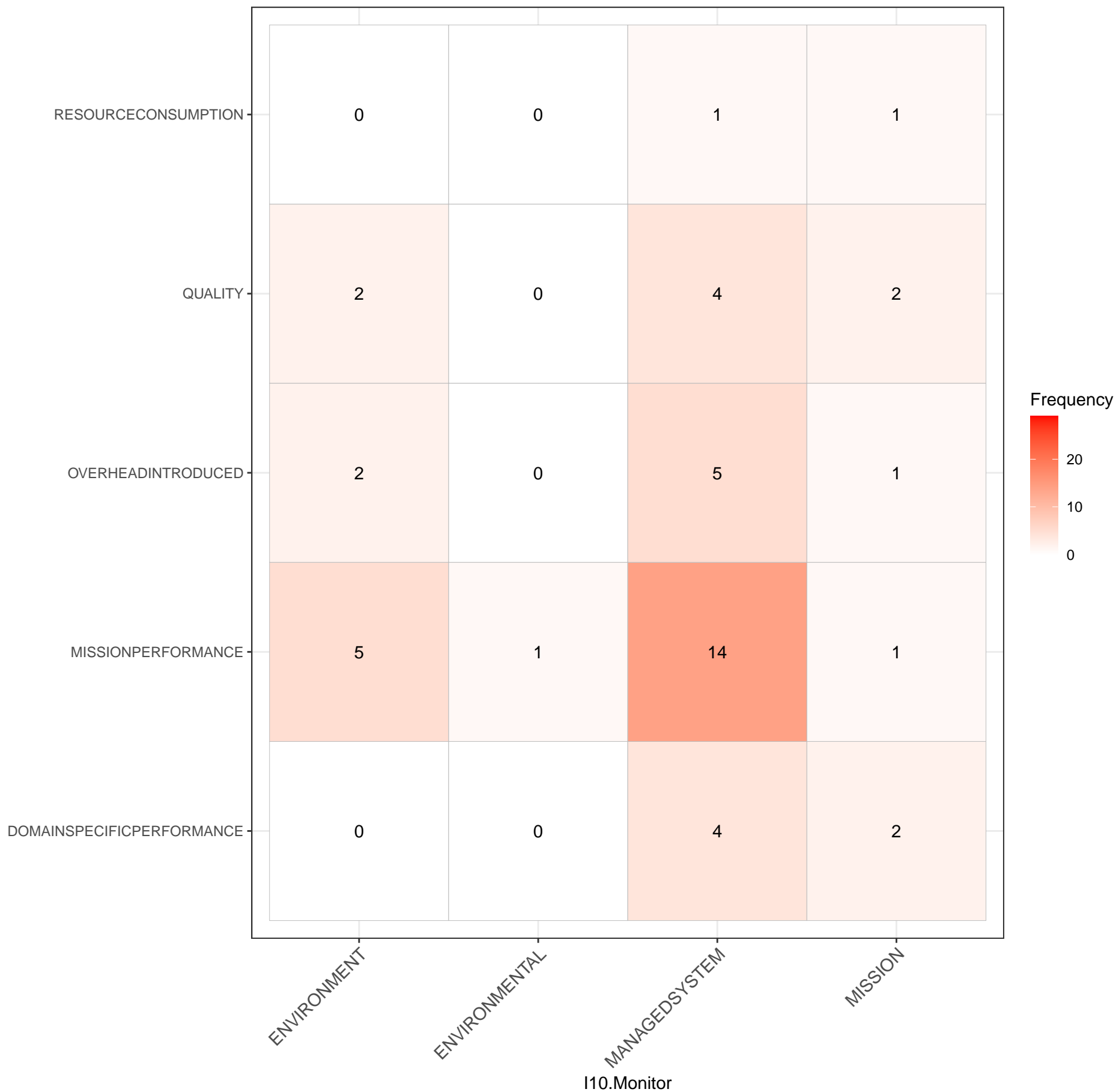
Experiment.Method_____I14.Knowledge



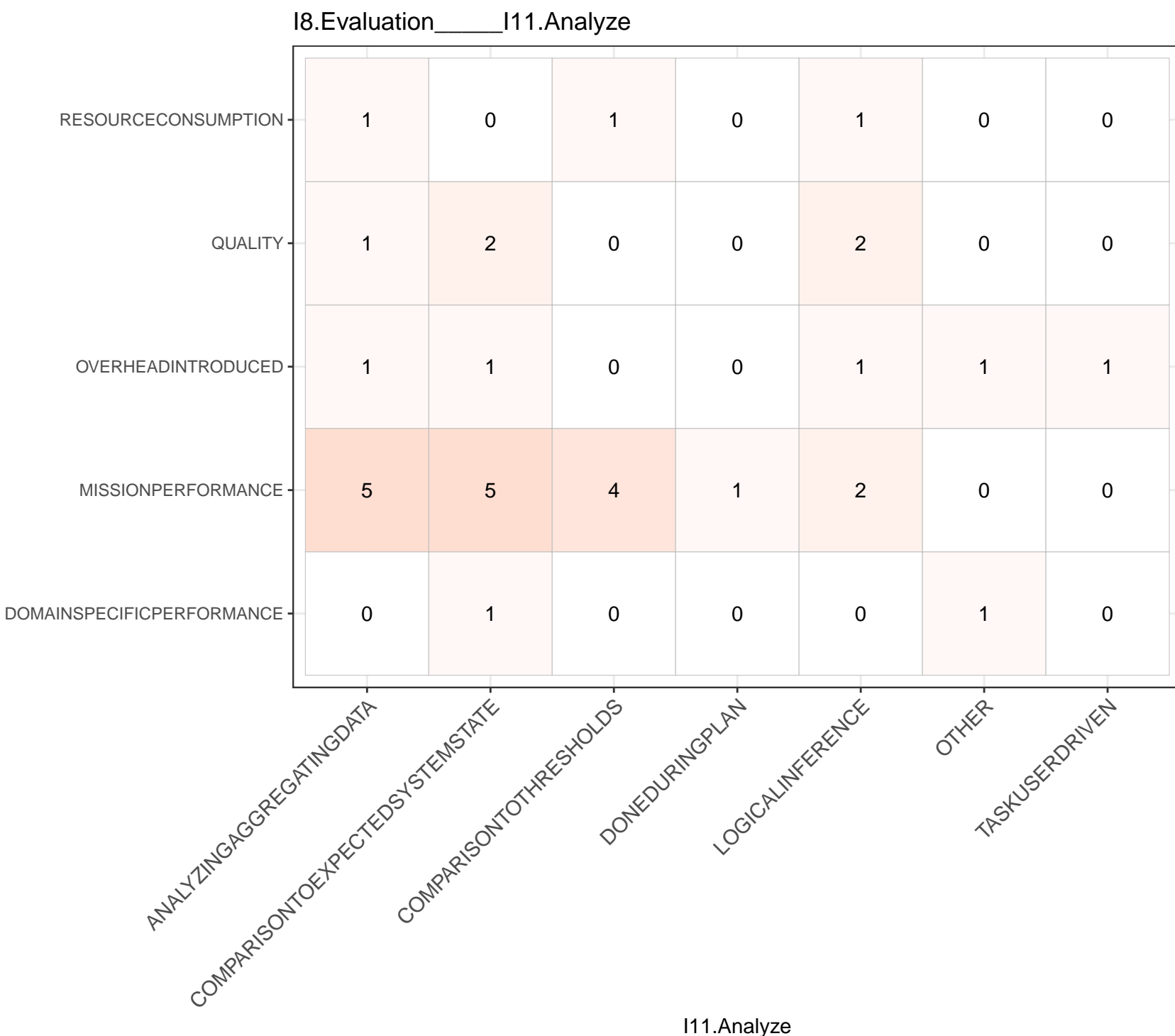


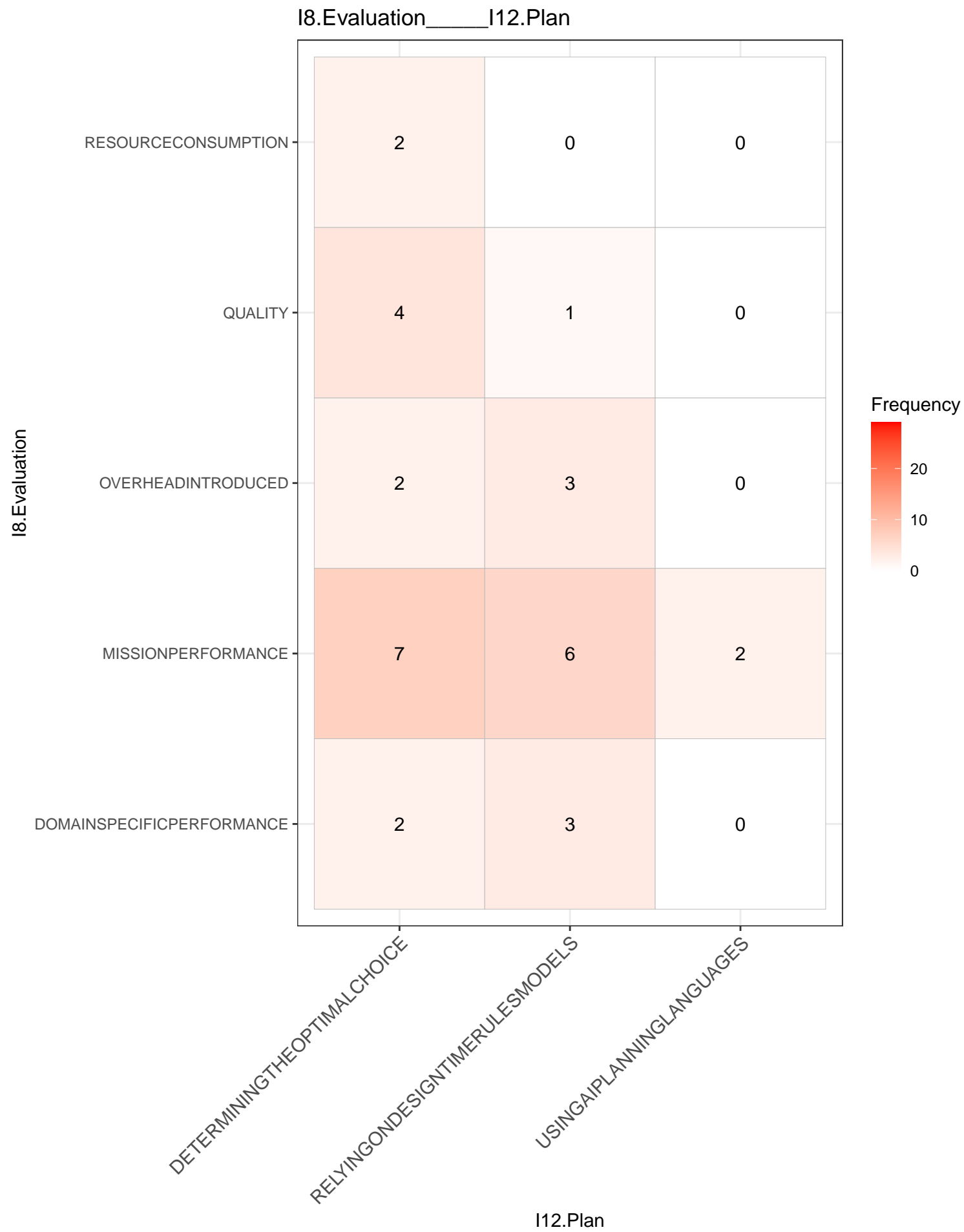
I8.Evaluation_____I10.Monitor

I8.Evaluation



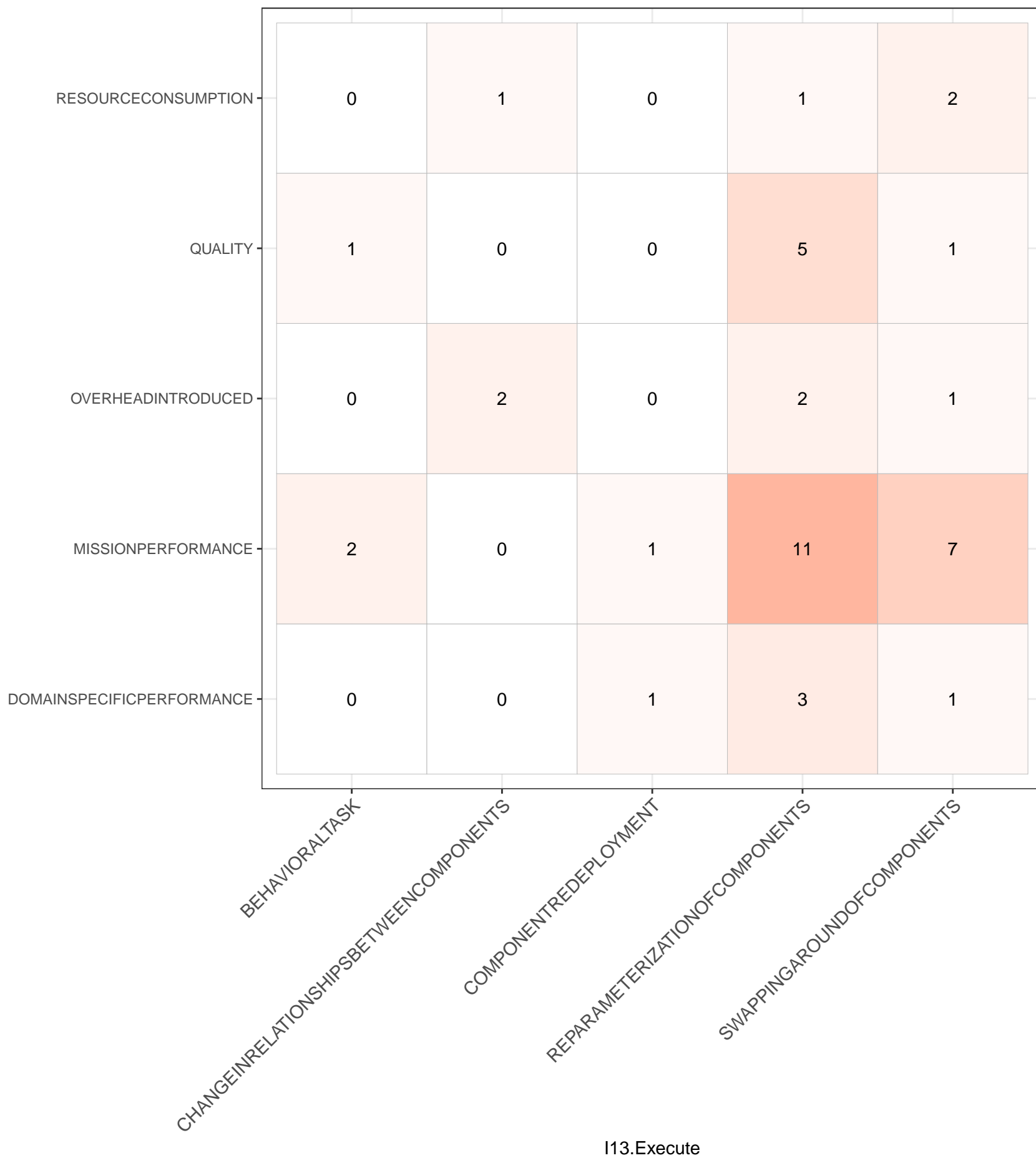
I8.Evaluation



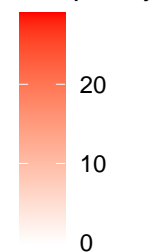


I8.Evaluation_____I13.Execute

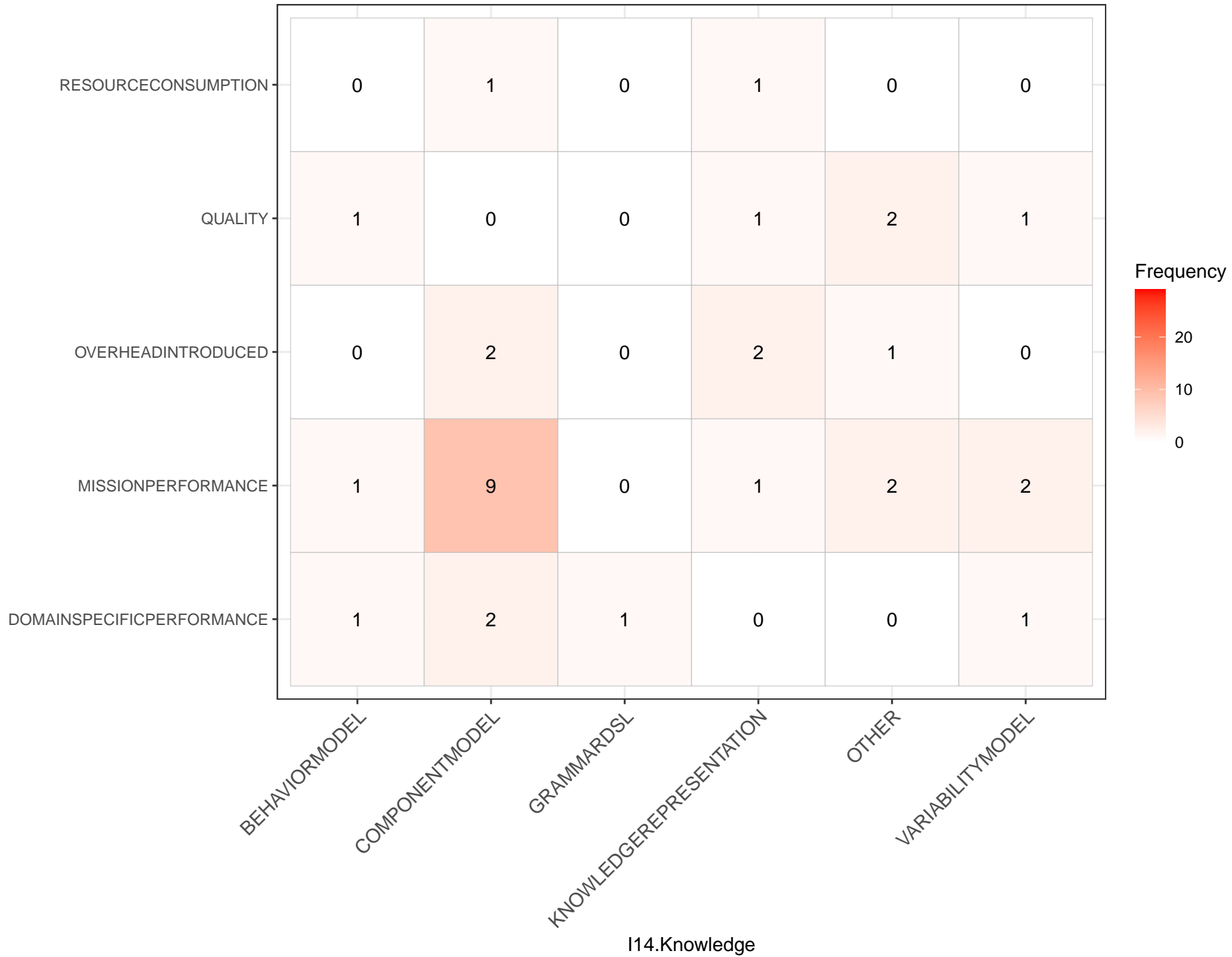
I8.Evaluation



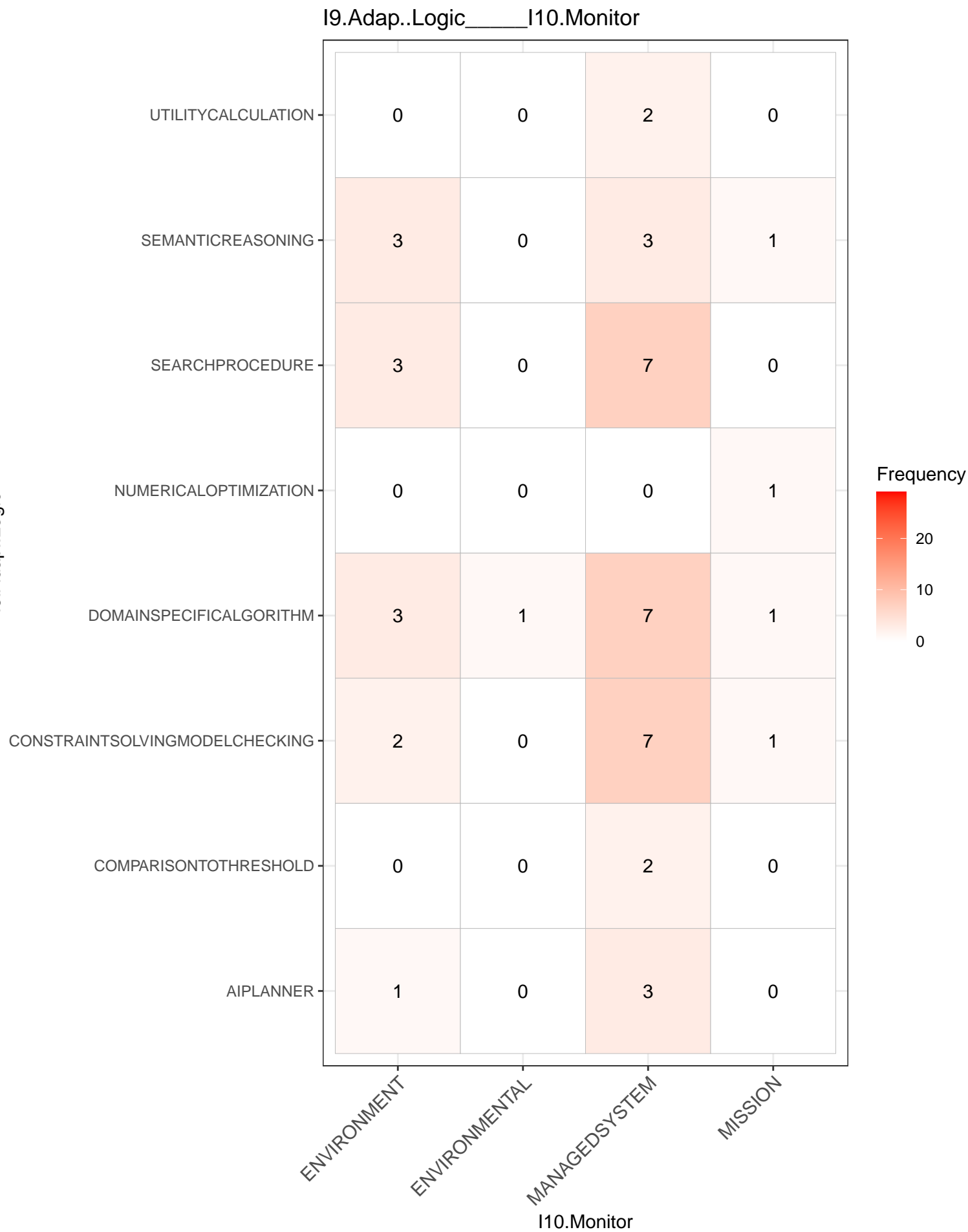
Frequency



I8.Evaluation_____I14.Knowledge

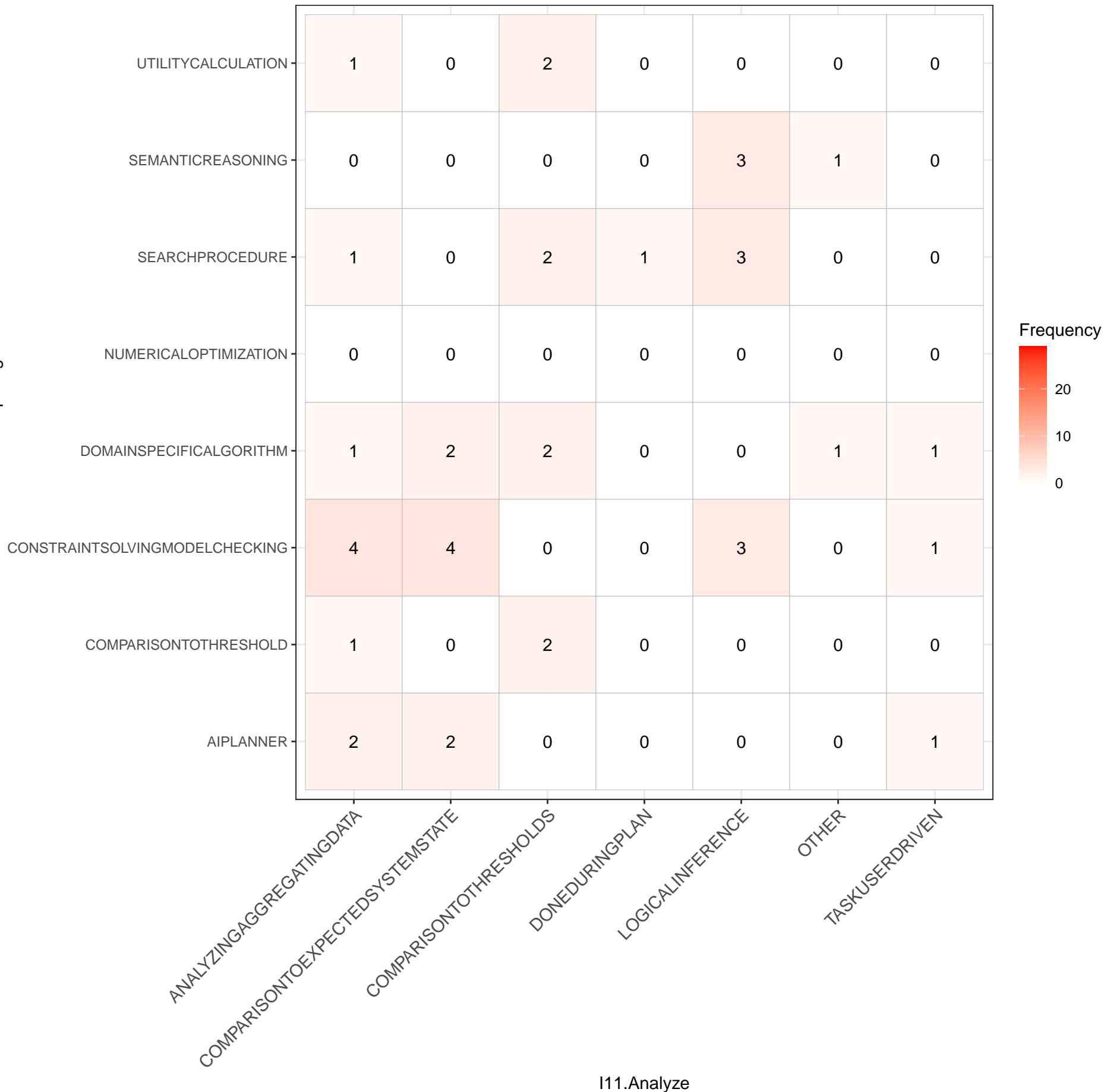


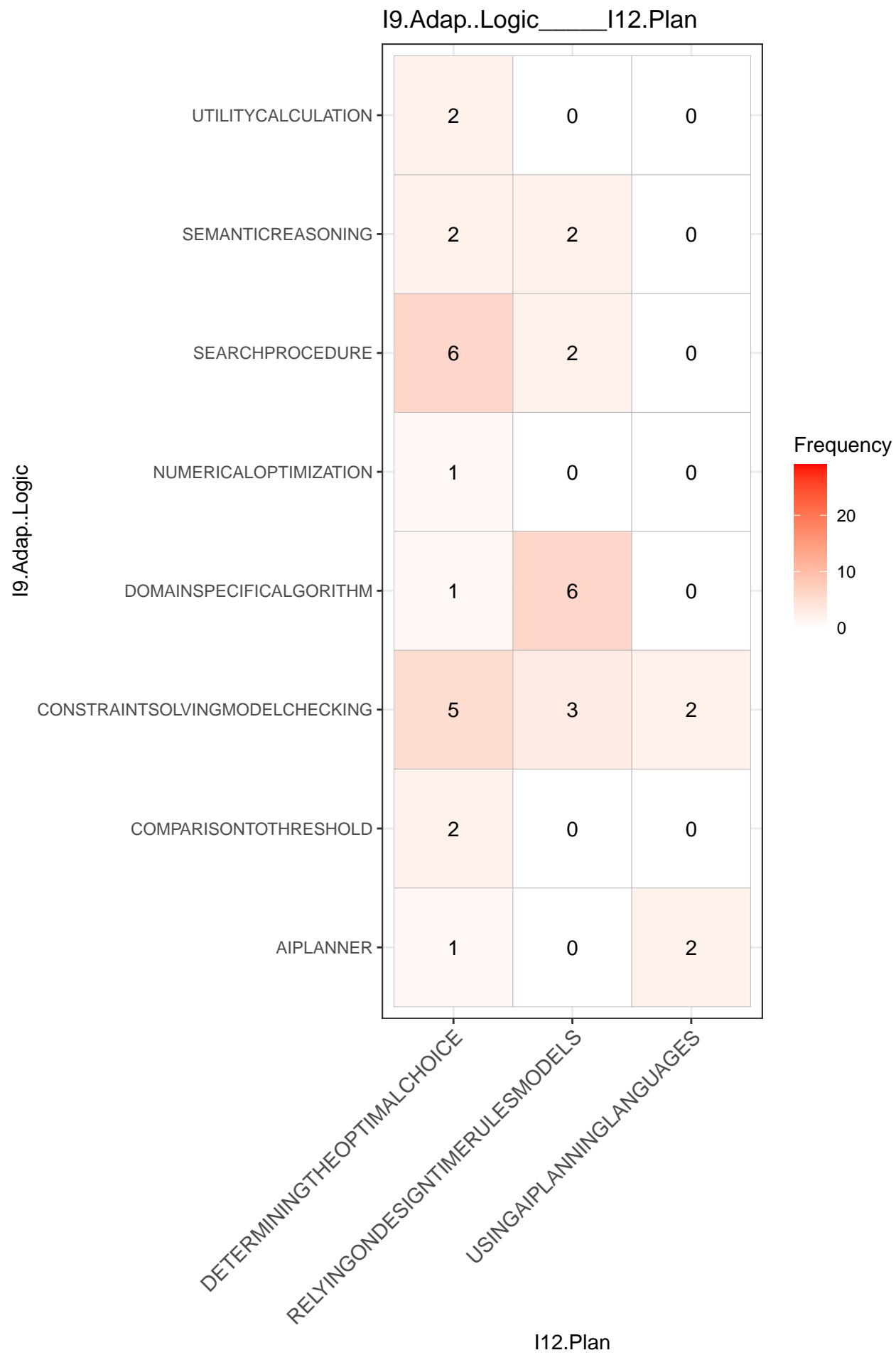
I9.Adap..Logic



I9.Adap..Logic_____I11.Analyze

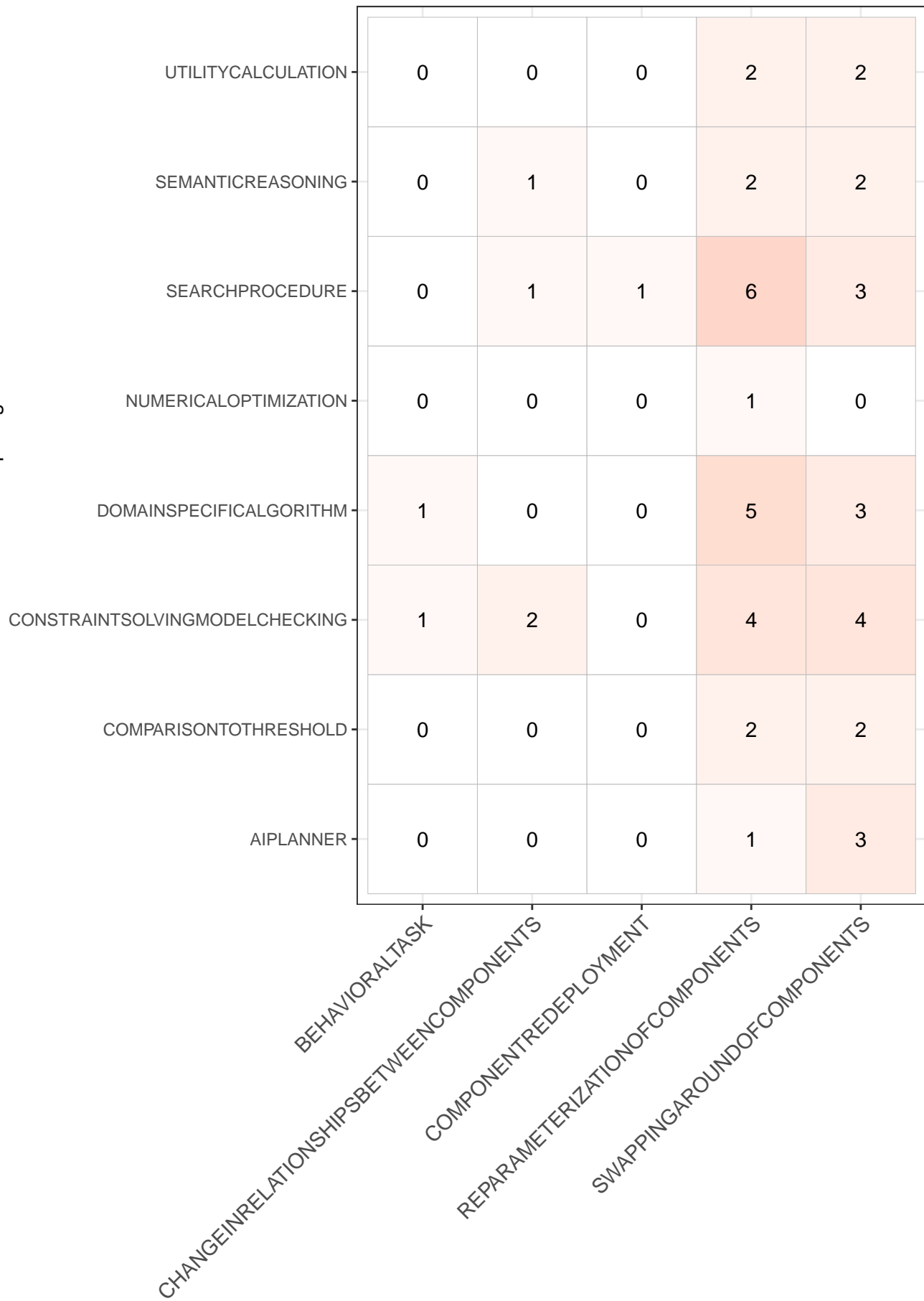
I9.Adap..Logic





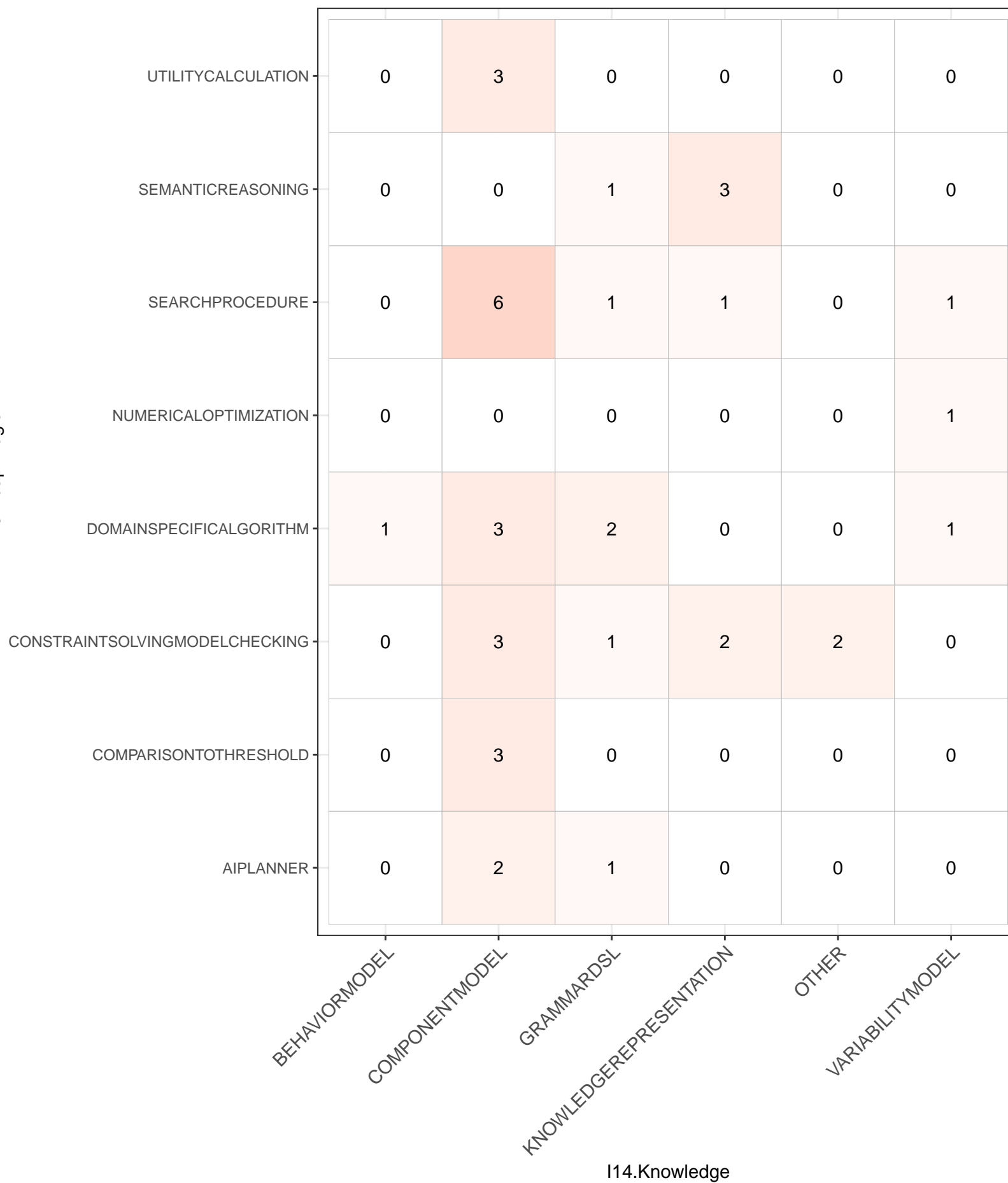
I9.Adap..Logic_____I13.Execute

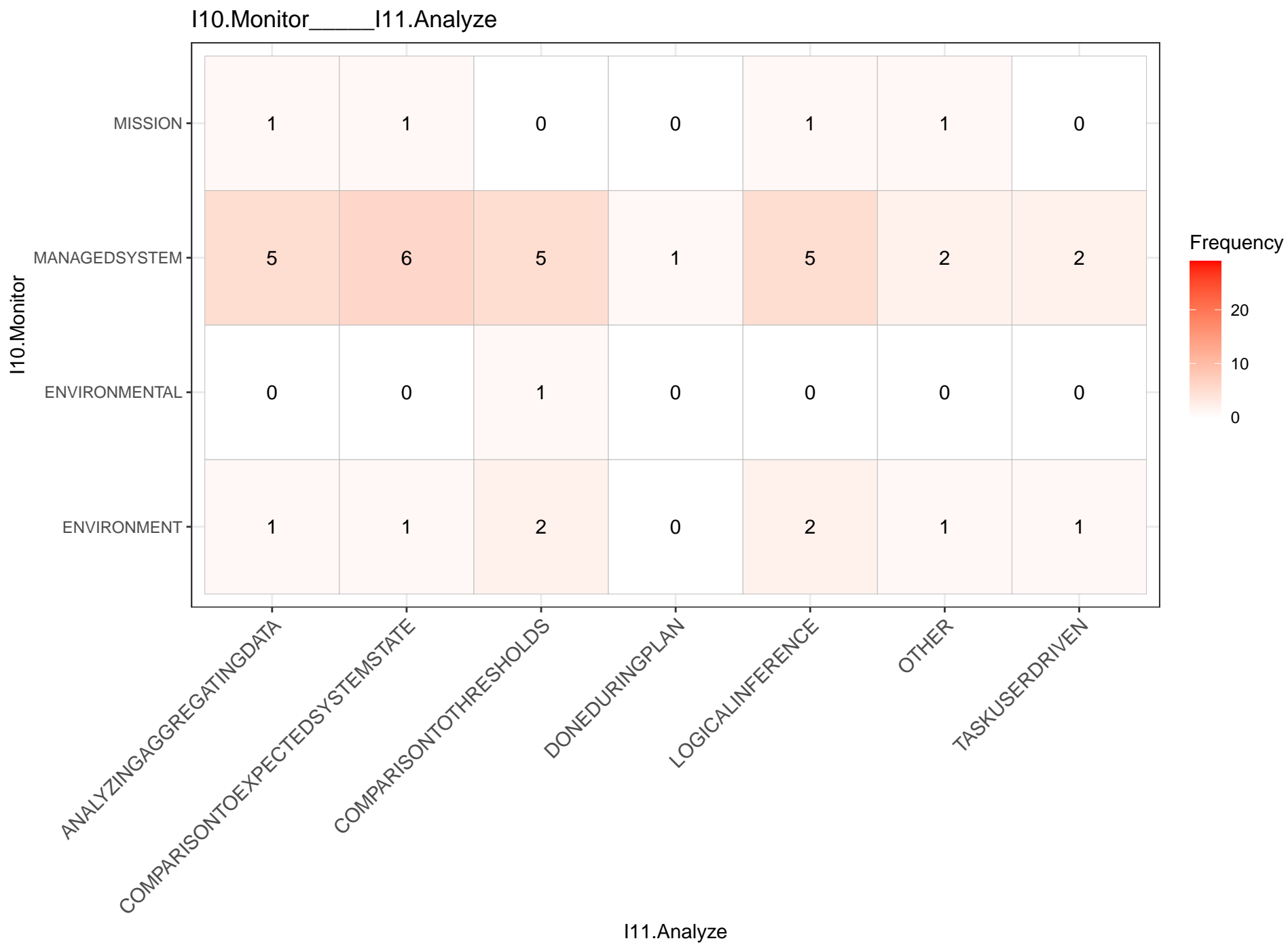
I9.Adap..Logic

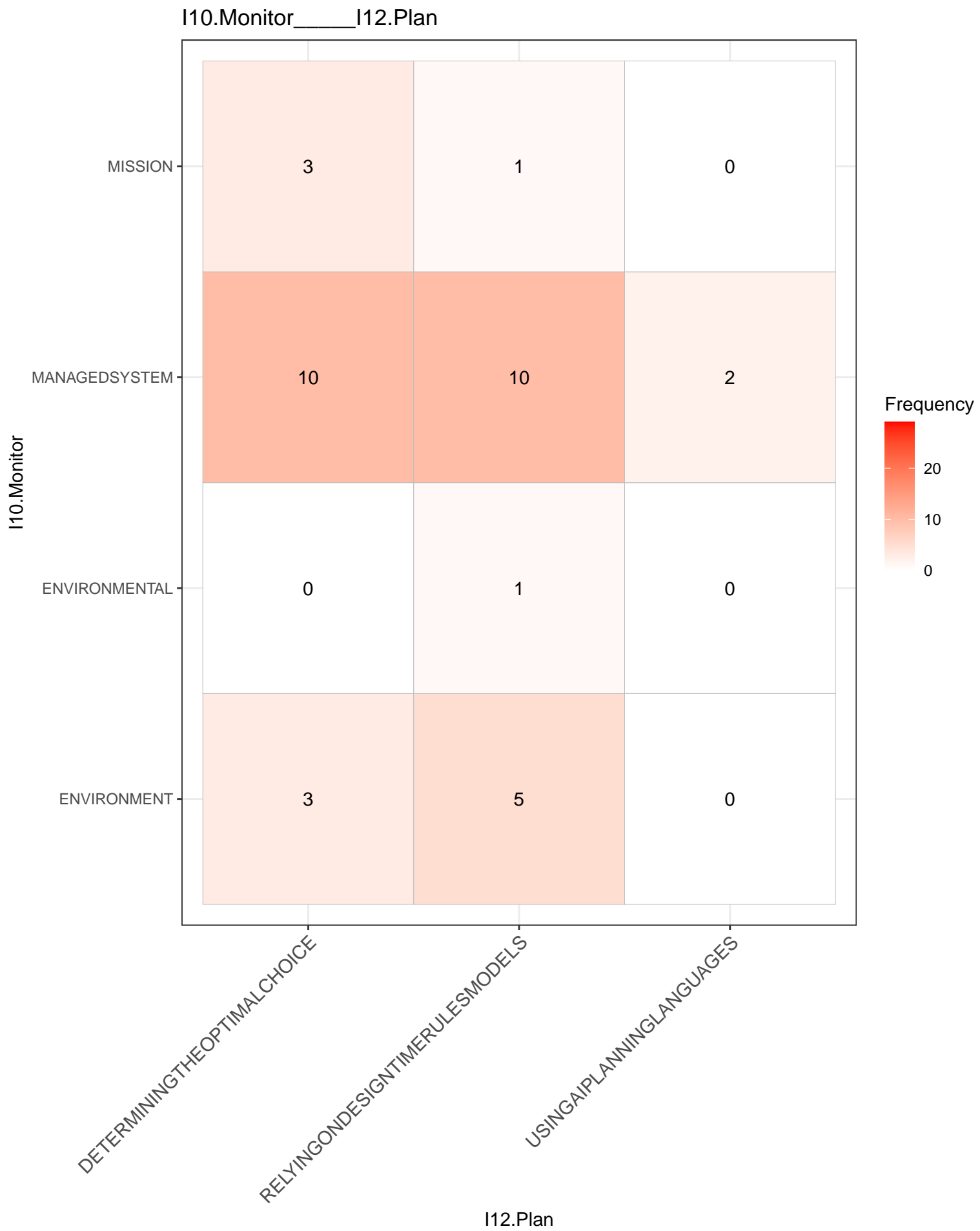


I9.Adap..Logic_____I14.Knowledge

I9.Adap..Logic

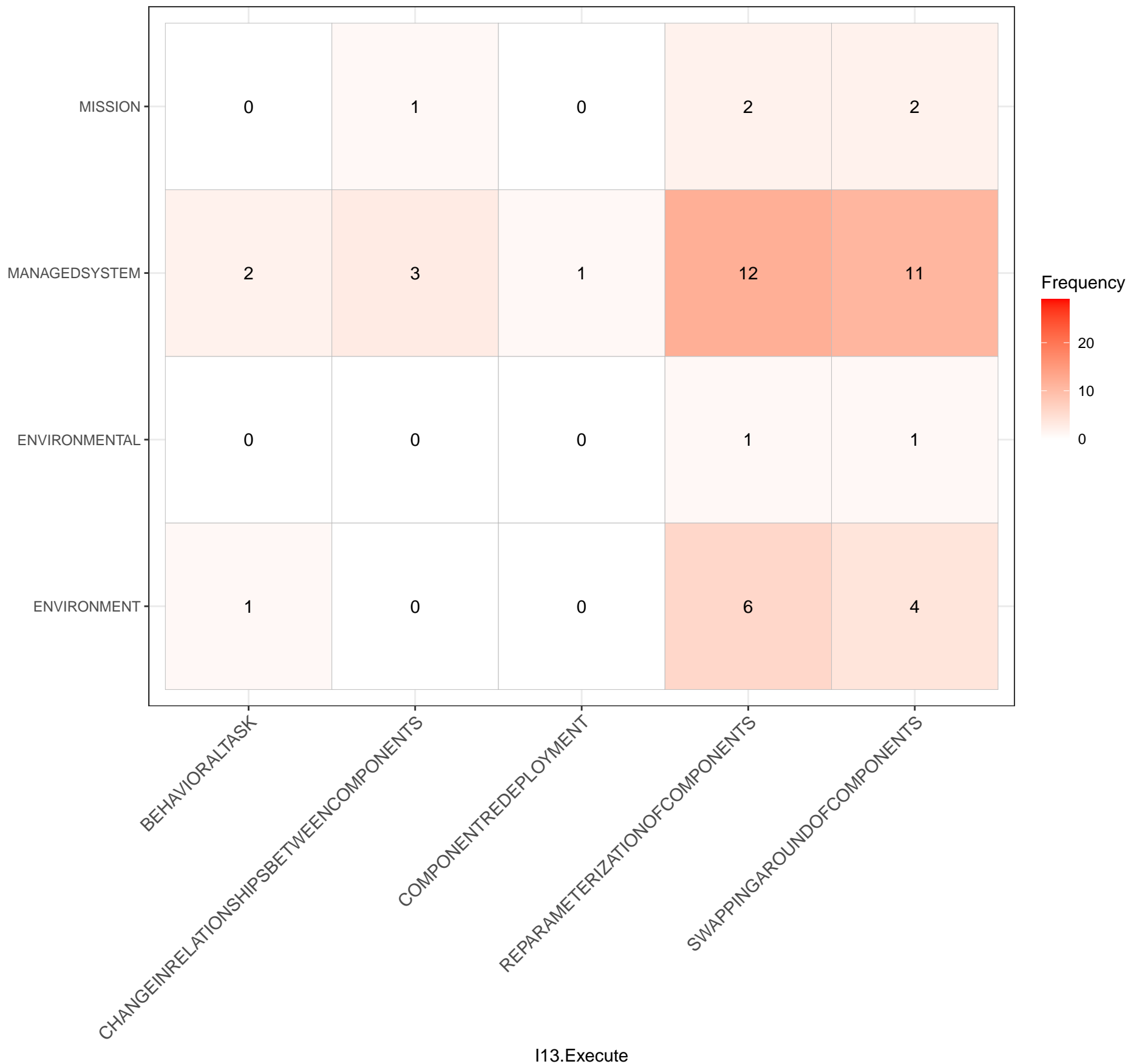






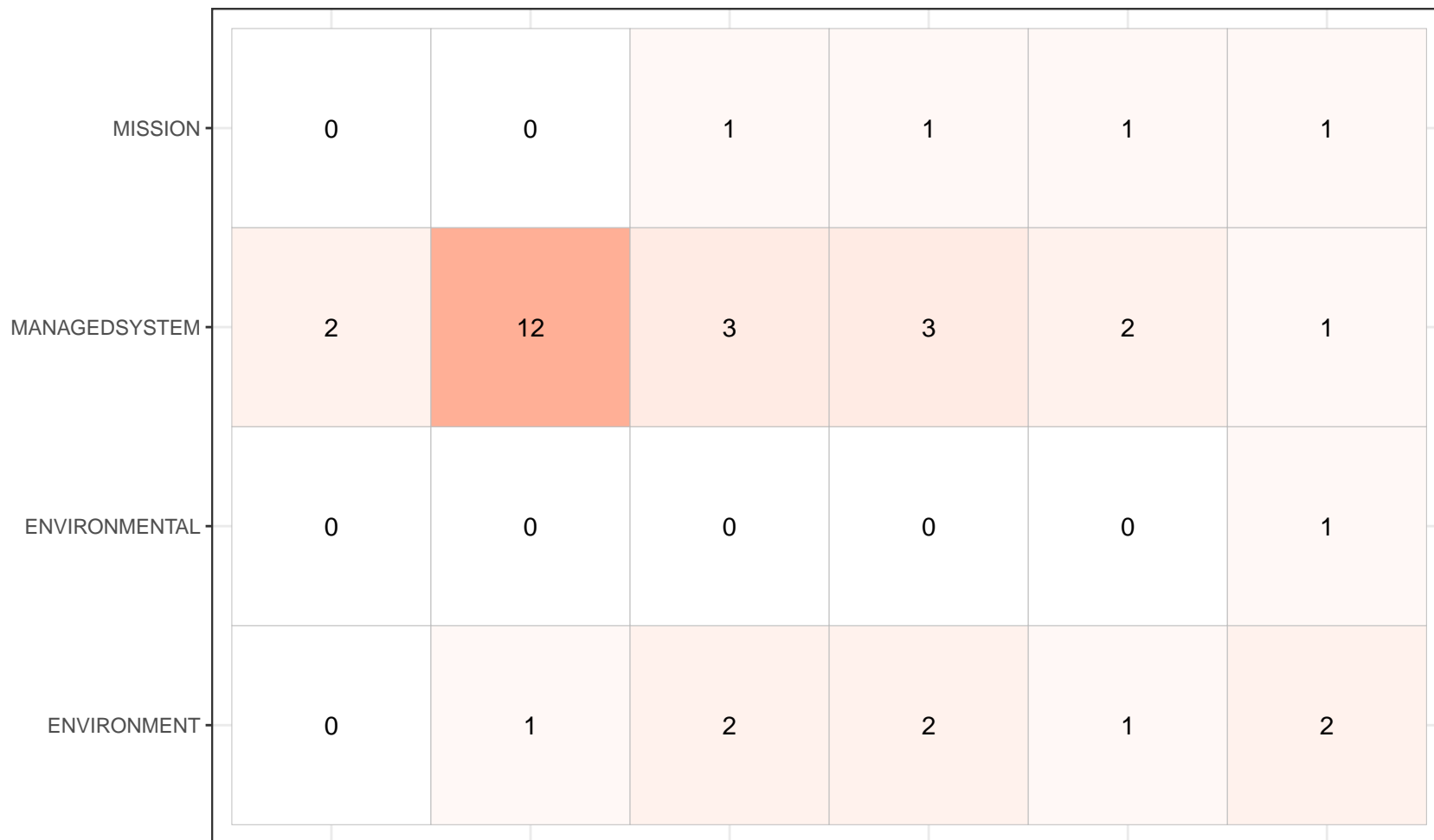
I10.Monitor_____I13.Execute

I10.Monitor



I10.Monitor_____I14.Knowledge

I10.Monitor

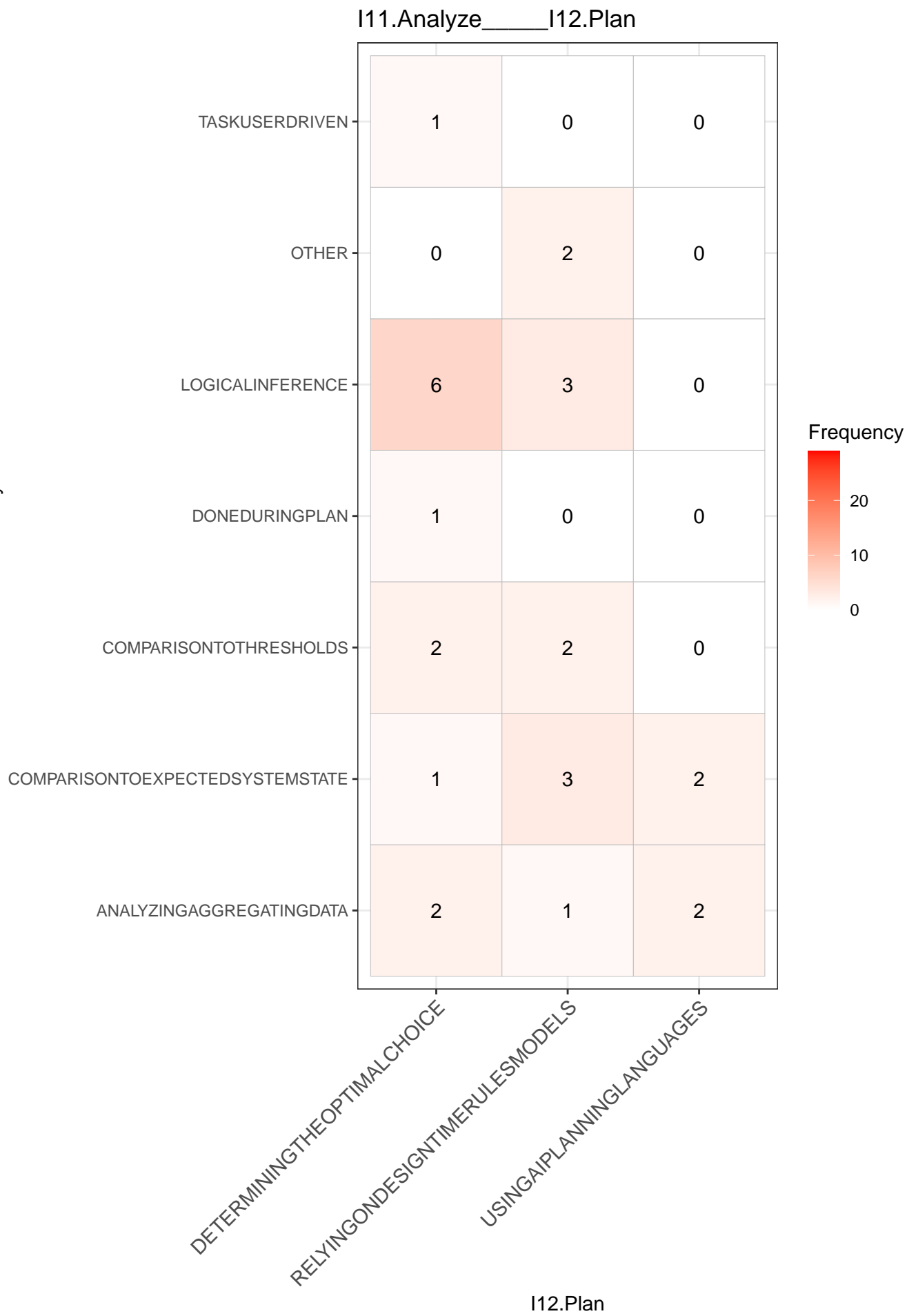


Frequency

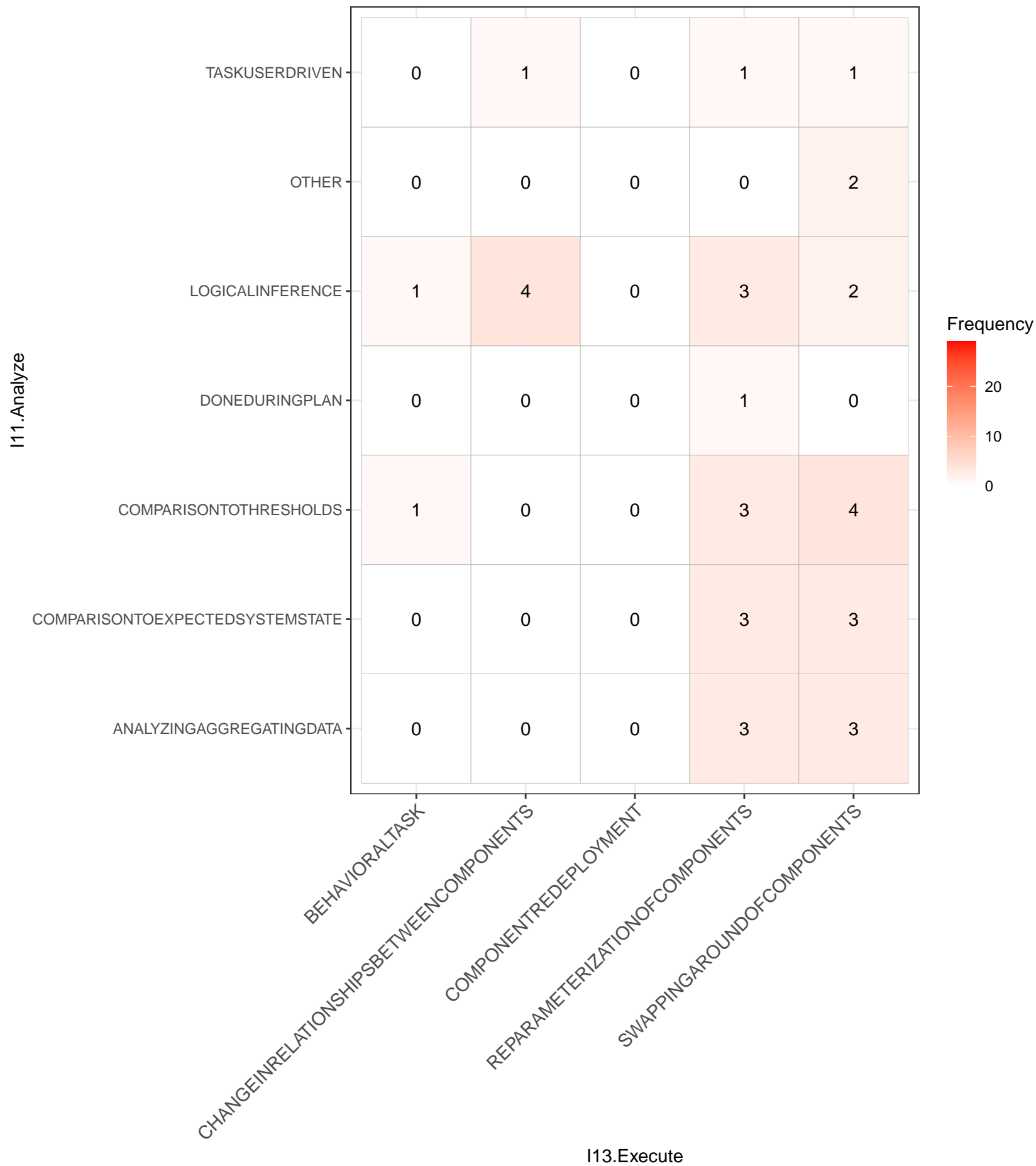


I14.Knowledge

I11.Analyze



I11.Analyze_I13.Execute



I11.Analyze_____I14.Knowledge

I11.Analyze

