

Functional Specification of EURent

Rieks Joosten (rieks.joosten@tno.nl)

5 June 2014

Contents

1	Introduction	4
2	Shared Language	5
2.1	EURentOntology	5
2.2	Computations	15
2.3	Automated field completion	15
3	Diagnosis	16
4	Conceptual Analysis	19
5	Process Analysis	20
5.1	EURentOntology	21
5.2	Computations	25
5.3	Automated field completion	28
6	Data structure	29
6.1	Classifications	29
6.2	Fact types	29
6.3	Logical datamodel	33
6.3.1	Entity type: <i>Branch</i>	33
6.3.2	Entity type: <i>Car</i>	34
6.3.3	Entity type: <i>CarType</i>	34
6.3.4	Entity type: <i>CompNrDays</i>	35
6.3.5	Entity type: <i>CompNrExcessDays</i>	35
6.3.6	Entity type: <i>CompRentalCharge</i>	35
6.3.7	Entity type: <i>CompTariffedCharge</i>	36

6.3.8	Entity type: <i>DistanceBetweenLocations</i>	36
6.3.9	Entity type: <i>RentalContract</i>	37
6.3.10	Entity type: <i>SESSION</i>	38
6.4	Technical datamodel	38
6.4.1	Table: Amount	39
6.4.2	Table: Branch	39
6.4.3	Table: Brand	40
6.4.4	Table: Car	40
6.4.5	Table: CarRentalCompany	40
6.4.6	Table: CarType	40
6.4.7	Table: CompNrDays	41
6.4.8	Table: CompNrExcessDays	41
6.4.9	Table: CompRentalCharge	42
6.4.10	Table: CompTariffedCharge	42
6.4.11	Table: Date	42
6.4.12	Table: Distance	43
6.4.13	Table: DistanceBetweenLocations	43
6.4.14	Table: DrivingLicense	43
6.4.15	Table: Integer	43
6.4.16	Table: Location	43
6.4.17	Table: MaxRentalDuration1	44
6.4.18	Table: Model	44
6.4.19	Table: Person	44
6.4.20	Table: RentalContract	44
6.4.21	Table: SESSION	46
6.4.22	Table: YesNo	46
6.4.23	Table: dateIntervalCompTrigger	46
6.4.24	Table: dateIntervalsWithinMaxRentalDuration	47
6.4.25	Table: distbranch	47
6.4.26	Table: maxRentalDuration2	47
6.4.27	Table: rcKeysHandedOverQ	47
6.4.28	Table: rentalHasEnded	48
6.4.29	Table: rentalHasStarted	48
6.4.30	Table: rentalIsPaidQ	48
6.4.31	Table: validDrivingLicense	49

Chapter 1

Introduction

This document specifies automated support for the EU-Rent example as described in 'DEMO-3 Way of Working (version 3, 1 September 2009)' by Jan L.G. Dietz. The purpose of the effort that resulted in this document is to provide case material to support statements regarding the extent that the DEMO approach and the Ampersand approach interfere and/or support one another. We use the notation 'slide ' to refer to a specific slide in the DEMO-3 document mentioned above. In this notation, is the slide number that can be found at the bottom of the slide. We use the notation 'P:', to refer to a specific sentence in the EU-Rent description of slide 3. In this notation, identifies the paragraph number, and identifies the sentence in that paragraph. Occasionally, the letter 'a' or 'b' may be appended to indicate the first or second part of (long) sentences.

P2:1 states: "A car may be rented by a reservation in advance or by a 'walk-in' customer on the day of renting". The Note on slide 10 says that there is no difference between these two. We will follow this idea so as not to digress too much from the case. The consequence of this is that making a reservation in advance does not mean that there is a higher chance that a car of the requested type will be available.

This document¹ defines the functionality of an information system called 'EU-Rent'. It defines the database and the business services of EURent by means of business rules². Those rules are listed in chapter 2, ordered by theme. , ordered by theme.

The diagnosis in chapter 3 is meant to help the authors identify shortcomings in their Ampersand script.

¹This document was generated at 5-6-2014 on 07:29:40, using Ampersand v3.0.2.1356, build time: 31-May-14 17:40:25 UTC.

²Rule based design characterizes the Ampersand approach, which has been used to produce this document.

Chapter 2

Shared Language

This chapter defines the natural language, in which functional requirements of ‘EURent’ can be discussed and expressed. The purpose of this chapter is to create shared understanding among stakeholders. The language of ‘EURent’ consists of concepts and basic sentences. All functional requirements are expressed in these terms. When stakeholders can agree upon this language, at least within the scope of ‘EURent’, they share precisely enough language to have meaningful discussions about functional requirements. All definitions have been numbered for the sake of traceability.

2.1 EURentOntology

In order to create a system that supports business functions, an ontology must exist that pertains to the information within that system. The ontology not only defines the (abstract) terms (concepts) and relations between them, but it must also specify the rules that must hold for the actual information in the system. This process defines such an ontology for the EU-Rent example.

EU -Rent is a company that rents cars to persons, operating from geographically dispersed branches. Therefore, we must know what branches exist with EU-Rent. *P1:1*

Agreement 1: Every branch is part of a car rental company.

Phrases that can be made are for instance:

AMS is a branch of EU-Rent.

DHG is a branch of EU-Rent.

RTD is a branch of EU-Rent.

EU -Rent operates from geographically dispersed branches. We need to know *P1:1, P4:5*

where such locations are in order to compute penalty charges for drivers that drop off their car at a location other than is contracted, because such charges depend on the distance between the actual and the contracted drop-off branch.

Agreement 2: Every branch operates from a geographical location.

Phrases that can be made are for instance:

AMS is located in Amsterdam.

DHG is located in Den Haag.

RTD is located in Rotterdam.

The cars of EU-Rent are divided in car types (brands and models). *P1:2a*

Agreement 3: A cartype has a specific brand.

Phrases that can be made are for instance:

The brand of Audi A4 is Audi.

The brand of VW Beetle is Volkswagen.

The brand of VW Passat is Volkswagen.

The cars of EU-Rent are divided in car types (brands and models). *P1:2a*

Agreement 4: A cartype has a specific model.

Phrases that can be made are for instance:

The model of Audi A4 is A4.

The model of VW Beetle is Beetle.

The model of VW Passat is Passat.

For every car type there is a particular rental tariff per day. *P1:2b*

Agreement 5: All car types have a specified rental tariff (Euros/day).

Phrases that can be made are for instance:

The rental tariff for Audi A4 is 93 Euros/day.

The rental tariff for VW Beetle is 60 Euros/day.

The rental tariff for VW Passat is 90 Euros/day.

In order to compute the correct charge for renting a car, the start date must be known. Note that the meaning of this date depends on whether or not the rental has already started. If the rental has not yet started, it is the date that the rental is foreseen to start. If the rental has started, it is the date on which the rental actually started. *P2:2*

Agreement 6: Rental contracts may specify the actual (and contractual) start date of the rental.

Phrases that can be made are for instance:

The contractual and/or actual starting date of the rental of RC_AMS_123 is 01-07-2014.

The contractual and/or actual starting date of the rental of RC_RTD_262 is 01-06-2014.

In order to determine whether or not a penalty has to be paid for a late drop-off, the end date before which the car will be dropped off must be contractually administrated. *P2:2*

Agreement 7: Rental contracts may specify the (contractual) end date of the rental.

Phrases that can be made are for instance:

The contractual end date of the rental of RC_AMS_123 is 10-07-2014.

The contractual end date of the rental of RC_RTD_262 is 07-06-2014.

Since the daily charges depend on the car type, the contract must mention what type of car is (going to be) rented. *P2:2*

Agreement 8: Rental contracts may specify the car type of the rental.

Phrases that can be made are for instance:

The contractual type of the car being rented under RC_AMS_123 is VW Polo.

The contractual type of the car being rented under RC_RTD_262 is VW Polo.

Drivers can only rent cars that are available at the pick-up branch. Therefore, it must be known which branch this is. *P2:2*

Agreement 9: Rental contracts may specify the branch where the rental starts (i.e.: the car is picked up).

Phrases that can be made are for instance:

The contractual and/or actual pick-up branch for the rental of RC_AMS_123 is AMS.

The contractual and/or actual pick-up branch for the rental of RC_RTD_262 is RTD.

In order to allow branches to plan their stock of available cars, it helps to know what cars will be dropped off at what branch. *P2:2*

Agreement 10: Rental contracts may specify the branch where the rental supposedly ends (i.e.: the car is dropped off).

Phrases that can be made are for instance:

The contractual drop-off branch for the rental of RC_AMS_123 is DHG.

The contractual drop-off branch for the rental of RC_RTD_262 is UTR.

Since EURent has specified a maximum duration for a rental, rental contracts must state whether or not the period between the specified pick-up and drop-off dates exceeds this maximum duration. *P2:3*

Agreement 11: the date interval (e.g.: [start date,end date]) is within the maximum rental duration as specified by EURent.

Phrases that can be made are for instance:

The period between 01-06-2014 and 07-06-2014 does not exceed the maximum allowed rental duration.

The period between 01-07-2014 and 10-07-2014 does not exceed the maximum allowed rental duration.

The person that will be held accountable for the rent, in particular for the payment thereof, must be administered. *P3.1*

Agreement 12: The person who rents the car is called the renter.

Phrases that can be made are for instance:

The renter for RC_AMS_123 is Richard Enter.

The renter for RC_RTD_262 is Richard Enter.

The person that will be held driving the rented car, must be administered, allowing amongst others that his driving license is checked. *P3.2*

Agreement 13: The person who is going to drive is called the driver.

Phrases that can be made are for instance:

The driver for RC_AMS_123 is Dick River.

The driver for RC_RTD_262 is Dick River.

Since rentals may only be started if the driver has a valid driving license, the number of such a license will be registered. Registration must imply that the license is valid. *P3.3*

Agreement 14: A person may have a valid driving license.

A phrase that can be formed is for instance:

The driving license of Dick River , with number DL01235467 , is valid.

Since only cars that are available at the pick-up branch may be rented, the availability of these cars at the branches must be known. *P3.4*

Agreement 15: It is known which cars are available at a branch.

Phrases that can be made are for instance:

Car with license plate 1-AMS-11 is available at EU-Rent branch AMS.

Car with license plate 1-AMS-12 is available at EU-Rent branch AMS.

Car with license plate 1-AMS-13 is available at EU-Rent branch AMS.

In order for the renter/driver to specify the car (s)he wants to rent, but also to correctly compute rental charges, the type of every car must be known.

Agreement 16: Every car is of a specific type (brand, model).

Phrases that can be made are for instance:

Car with license plate 1-AMS-11 is a VW Polo.

Car with license plate 1-AMS-12 is a VW Polo.

Car with license plate 1-AMS-13 is a VW Passat.

A rental starts when a driver has been handed the car keys. In order for the system to keep track of its cars (amongst other things), this (manual) action must be registered. Registration of this action presupposes that the information as registered in the rental contract is in accordance with reality, which the issuer of the keys must check. Note that when a rental is started, the car is no longer available for rent.

Agreement 17: Branches must register the handover of car keys (i.e. the responsibility for the car).

In order to keep track of the cars that EU-Rent owns, every contract must specify the car that is being rented.

Agreement 18: Rental contracts specify the car that is (to be) issued to the driver.

Phrases that can be made are for instance:

The car that will be, or has been issued under RC_AMS_123 has license plate 1-AMS-12.

The car that will be, or has been issued under RC_RTD_262 has license plate 3-RTD-18.

The event where a rental starts is important for many reasons, a major one being that from that moment onward, payment is due. Another one is that at this moment, responsibility for the car is transferred from EU-Rent (i.e.: the branch where the car is picked up) to the renter. Therefore, for every rental contract it must be known whether or not the associated rental has started or not.

Agreement 19: The property 'Rental has started' is a property that every rental contract has for which the associated rental has started.

A phrase that can be formed is for instance:

RC_RTD_262 has the property 'rental has started', meaning that the rental associated with RC_RTD_262 has started..

In order to allow checking whether or not the dropped off car is the same car as *P4.1* was rented, the dropped off car must be identified.

Agreement 20: Rental contracts may specify the car that has actually been dropped off.

A phrase that can be formed is for instance:

The car that has been dropped-off for RC_RTD_262 is 3-RTD-18.

In order to make up the bill for the rental, the date at which the rented car is dropped off must be known.

Agreement 21: Rented cars are dropped off on specific dates.

A phrase that can be formed is for instance:

The car rented under RC_RTD_262 has been dropped off on 14-06-2014.

In order to make up the bill for the rental, the branch at which the rented car is dropped off must be known.

Agreement 22: Rented cars must be dropped off at a specific branch.

A phrase that can be formed is for instance:

The car rented under RC_RTD_262 has been dropped off at AMS.

The event where a rental ends is important for many reasons, a major one being that this moment determines several components of the bill. Another one is that at this moment, responsibility for the car is transferred back to EU-Rent (i.e.: the branch where the car is dropped off). Therefore, for every rental contract it must be known whether or not the associated rental has ended or not.

Agreement 23: The property 'Rental has ended' is a property that every rental contract has for which the associated rental has ended.

In order to be able to terminate the rental, it must be known that payment is received.

Agreement 24: Payments for rental contracts need to be accepted (or declined).

In order for a renter/driver to pay for a rental, the total amount (rental charge) must be known.

Agreement 25:

In order to compute the basic rental charge, the period of the actual rental must be known. *P4:3*

Agreement 26:

The first component of the rental charge is the rental basic charge. *P4.3*

Agreement 27: Rental contracts may specify an amount for the basic charge

In order to compute the penalty charge for exceeding the contracted rental duration, the period of the actual rental must be known. *P4:4*

Agreement 28:

In order to compute the penalty charge for exceeding the contracted rental duration, for each type of car it is specified what the excess charge per day will be.

Agreement 29: All car types have a specified excess tariff (Euro/day)

Phrases that can be made are for instance:

For cars of type Audi A4 the extra charge for a late drop-off is 56 Euro/day.

For cars of type VW Beetle the extra charge for a late drop-off is 38 Euro/day.

For cars of type VW Passat the extra charge for a late drop-off is 47 Euro/day.

The second component of the rental charge is the penalty charge (for exceeding the contracted rental duration). *P4.4*

Agreement 30: Rental contracts may specify an amount for the penalty charge for late drop-offs

In order to compute the penalty charge for dropping of a car at another location than was contractually agreed, the amount that will be charged as a penalty for this must be known. *P4.5*

Agreement 31: There is a penalty charge for cars that are dropped-off at another branch than agreed.

Phrases that can be made are for instance:

The penalty charge for dropping off a car at a branch that is AMS-DHG km away from the contracted drop-off branch, is 61 Euros..

The penalty charge for dropping off a car at a branch that is AMS-RTD km away from the contracted drop-off branch, is 67 Euros..

The penalty charge for dropping off a car at a branch that is AMS-UTR km away from the contracted drop-off branch, is 38 Euros..

The third component of the rental charge is the penalty for dropping off a rented car another location than was contractually agreed. *P4.5*

Agreement 32: Rental contracts may specify an amount for the penalty charge for late drop-offs

While our scope is limited to EU-Rent, we need to explicitly model it as a company in order to be able to define company policy that holds for all branches. An example of this would be the maximum rental period. *P2:3*

Agreement 33: The system is limited to branches that are part of EU-Rent.

Since EURent has specified a maximum duration for a rental, it must be checked (computed) whether or not the period between the specified pick-up and drop-off dates exceeds this maximum duration. P2:3

Whenever the driver in a rental contract is known, his/her driving license must be checked for validity. If it is valid, the license number must be registered. P3.3

Agreement 35: Drivers must have a valid driving license.

The type of car that is requested can only be one for which the pick-up branch has cars available. P3.4

Agreement 36: Rental contracts for which the rental has not started yet may only refer to a car of a type that is available at the pick-up branch.

In order to ensure that cars are not lost 'administratively', every car must be accounted for.

Agreement 37: All cars must either be rented, or in stock at one of the branches.

In order to prevent errors from occurring when Yes/No answers are answered differently, it is necessary to check whether such answers are either 'Yes' or 'No'.

Agreement 38: A Yes/No answer may only take the values 'Yes' or 'No'.

In order to ensure that the contents of the contracts are valid, it must be checked whether the car that is issued is of the type that is mentioned in the contract.

Agreement 39: The type of a rented car must be the same as the type mentioned in the contract.

For sanity reasons, the question of whether or not the keys are handed over can only be answered if the driver is known.

Agreement 40: Keys may only be handed over to the driver that is mentioned in the contract.

When the keys are handed to the driver, and the renter is not specified, we may assume that the driver also fulfills the role of renter, and fill this in the contract.

The event where a rental starts is important for many reasons, a major one being that from that moment onward, payment is due. Therefore, for every rental contract it must be precisely known when this point in time occurs.

Agreement 42: A rental starts when the contract has been completely filled in, the responsibility for a car has been transferred from the pick-up branch to the renter, and the driver has received the keys for this car.

Agreement 43: The car that is dropped off must be the one that has been issued.

The event where a rental ends is important. Therefore, for every rental contract it must be precisely known when this point in time occurs.

Agreement 45: Payment for a rental may only be accepted if the total amount of the rental charge is known.

The rental charge consists of three amounts: the basic rental charge, the penalty charge when the car is returned after the contracted drop-off date, and a penalty charge in case the car is dropped off at a different branch than contractually agreed. *P4:2-5*

The period of the actual rental is the difference between the date of the drop-off and the date of the pick-up of the rented car, plus one (so that if the drop-off date and the pick-up date are the same, the period is 1 day). *P4.3*

Agreement 47: The number of days that a rental has lasted is one more than the difference between the date that the rented car has been dropped off, and the date that the rented car was picked up.

The basic rental charge is the product of the period of the actual rental times the daily tariff that is valid for the type of car that was rented. *P4.3*

Agreement 48: The basic charge for a rental is the number of days the rental has lasted multiplied with the daily tariff for the type of car that was rented.

The excess period of the rental is zero, unless the drop-off date exceeds the contracted end date, in which case the period is the number of days between these two. *P4.4*

Agreement 49: The number of days in the excess period of a rental is zero, or the difference between the date that the rented car has been dropped off, and the contracted end date, whichever is more.

The penalty charge (for exceeding the contracted rental duration) is basic rental charge is the product of the excess period of the rental times the excess charge per day for the type of car that was rented. *P4.4*

Agreement 50: The penalty charge for a rental is the number of days in the excess period of the rental, multiplied with the excess tariff.

The penalty charge for dropping off a rented car another location than was contractually agreed is an amount that depends on the distance between the branches. *P4.5*

Agreement 51: The penalty charge for a drop-off at another location than the contracted one, is the number of kilometres between the actual and contracted drop-off locations, multiplied with the location penalty tariff.

2.2 Computations

Agreement 67: For all combinations of (different) branches, the distance between them is known.

2.3 Automated field completion

Chapter 3

Diagnosis

This chapter provides an analysis of the Ampersand script of ‘EURent’. This analysis is intended for the authors of this script. It can be used to complete the script or to improve possible flaws.

EURent does not specify which roles may change the contents of which relations.

EURent assigns rules to roles. The following table shows the rules that are being maintained by a given role.

rule	ExecEngine	BranchOffice
Auto fill in renter in rental contract	×	
Starting the rental	×	
Ending the rental	×	
Rental charge computation	×	
Rental period computation	×	
Basic charge computation	×	
Excess period computation	×	
Excess charge computation	×	
Location penalty computation	×	
Compute max rental duration	×	
Trigger interval computation	×	
Trigger rental charge computation	×	
Compute rental charge	×	
Trigger rental period computation	×	
Compute number of days in period	×	
Trigger regular charge computation	×	

Trigger excess charge computation	×
Compute charge based on number of days	×
Trigger excess period computation	×
Compute number of excess period days	×
Auto fill in fields of new rental contract	×
Auto fill in fields of new rental contract	×

Concepts Branch, CarRentalCompany, Location, CarType, Brand, Model, Amount, RentalContract, Date, Person, DrivingLicense, Car, YesNo, Integer, DistanceBetweenLocations, MaxRentalDuration, CompRentalCharge, CompNrDays, CompTariffedCharge, CompNrExcessDays, and Distance remain without a purpose.

The purpose of relations *maxRentalDuration*, *rcMaxRentalDuration*, *dateIntervalCompTrigger*, *arg1*, *arg2*, *arg3*, *compRentalCharge*, *earliestDate*, *latestDate*, *compNrDays*, *ctcNrOfDays*, *ctcDailyAmount*, *compTariffedCharge*, *firstDate*, *lastDate*, *compNrExcessDays*, *distbranch*, *distance*, *sessionBranch*, *sessionToday*, and *sessionRC* is not documented.

Relations *branchLocation*, *brand*, *model*, and *distance* are not used in any rule.

On line numbers 154 and 188 of file `.\EURent Ontology.adl` and on line number 147 of file `.\EURent Computations.adl` rules are defined without documenting their purpose. On line numbers 60, 124, 170, and 193 of file `.\EURent Ontology.adl` rules are defined, the meaning of which is documented by means of computer generated language. On line numbers 13, 18, 31, 35, 51, 63, 67, 77, 92, 100, 109, 124, and 134 of file `.\EURent Computations.adl` and on line number 88 of file `.\EURent Interfaces.adl` rules are defined without any explanation.

The table below shows for each theme (i.e. process or pattern) the number of relations and rules, followed by the number and percentage that have a reference. Relations declared in multiple themes are counted multiple times.

Theme	Relations	With reference	%	Rules	With reference	%
EURentOntology	32	22	68%	19	10	52%
Computations	18	0	0%	16	0	0%
Automated field completion	0	0	-	2	0	0%
Entire context	53	22	41%	37	10	27%

The following table shows which rules are not linked to a role within a particular process. This has as consequence that these rule(s) will be maintained by the computer.

process	rule
EURentOntology	EURent branches, Enforcing maximum rental duration, Qualified drivers, Rentable cars
Computations	Uniqueness of rental charge computations, Uniqueness of period computations, Uniqueness

The role-rule assignments in any of the described processes have been assigned to rules within that same process.

The population in this script does not specify any work in progress.

The population in this script violates no rule.

Chapter 4

Conceptual Analysis

This chapter defines the formal language, in which functional requirements of 'EURent' can be analysed and expressed. The purpose of this formalisation is to obtain a buildable specification. This chapter allows an independent professional with sufficient background to check whether the agreements made correspond to the formal rules and definitions.

This document specifies automated support for the EU-Rent example as described in 'DEMO-3 Way of Working (version 3, 1 September 2009)' by Jan L.G. Dietz. The purpose of the effort that resulted in this document is to provide case material to support statements regarding the extent that the DEMO approach and the Ampersand approach interfere and/or support one another. We use the notation 'slide ' to refer to a specific slide in the DEMO-3 document mentioned above. In this notation, is the slide number that can be found at the bottom of the slide. We use the notation 'P:', to refer to a specific sentence in the EU-Rent description of slide 3. In this notation, identifies the paragraph number, and identifies the sentence in that paragraph. Occasionally, the letter 'a' or 'b' may be appended to indicate the first or second part of (long) sentences.

P2:1 states: "A car may be rented by a reservation in advance or by a 'walk-in' customer on the day of renting". The Note on slide 10 says that there is no difference between these two. We will follow this idea so as not to digress too much from the case. The consequence of this is that making a reservation in advance does not mean that there is a higher chance that a car of the requested type will be available.

Chapter 5

Process Analysis

This document specifies automated support for the EU-Rent example as described in 'DEMO-3 Way of Working (version 3, 1 September 2009)' by Jan L.G. Dietz. The purpose of the effort that resulted in this document is to provide case material to support statements regarding the extent that the DEMO approach and the Ampersand approach interfere and/or support one another. We use the notation 'slide ' to refer to a specific slide in the DEMO-3 document mentioned above. In this notation, is the slide number that can be found at the bottom of the slide. We use the notation 'P:', to refer to a specific sentence in the EU-Rent description of slide 3. In this notation, identifies the paragraph number, and identifies the sentence in that paragraph. Occasionally, the letter 'a' or 'b' may be appended to indicate the first or second part of (long) sentences.

P2:1 states: "A car may be rented by a reservation in advance or by a 'walk-in' customer on the day of renting". The Note on slide 10 says that there is no difference between these two. We will follow this idea so as not to digress too much from the case. The consequence of this is that making a reservation in advance does not mean that there is a higher chance that a car of the requested type will be available.

EURent does not specify which roles may change the contents of which relations.

EURent assigns rules to roles. The following table shows the rules that are being maintained by a given role.

Role	Rule
ExecEngine	Auto fill in renter in rental contract Starting the rental Ending the rental Rental charge computation Rental period computation Basic charge computation Excess period computation Excess charge computation Location penalty computation Compute max rental duration Trigger interval computation Trigger rental charge computation Compute rental charge Trigger rental period computation Compute number of days in period Trigger regular charge computation Trigger excess charge computation Compute charge based on number of days Trigger excess period computation Compute number of excess period days Auto fill in fields of new rental contract Auto fill in fields of new rental contract

5.1 EURentOntology

In order to create a system that supports business functions, an ontology must exist that pertains to the information within that system. The ontology not only defines the (abstract) terms (concepts) and relations between them, but it must also specify the rules that must hold for the actual information in the system. This process defines such an ontology for the EU-Rent example.

Figure 5.1 shows the process model.

Figure 5.1: Process model of EURentOntologytxtProcess

The conceptual diagram of figure 5.2 provides an overview of the language in which this process is expressed.

Figure 5.2: Basic sentences of EURentOntologyConceptualProcess

EURent branches While our scope is limited to EU-Rent, we need to explicitly model it as a company in order to be able to define company policy that holds for all branches. An example of this would be the maximum rental period. P2:3

We use definition ?? (branchOf).

This means:

$$\text{branchOf} \vdash \text{branchOf};' tEU - \text{Rent}' \quad (5.1)$$

Enforcing maximum rental duration Since EURent has specified a maximum duration for a rental, it must be checked (computed) whether or not the period between the specified pick-up and drop-off dates exceeds this maximum duration. P2.3

We use definitions ?? (*rcStartDate*), ?? (*rcEndDate*), and ?? (*dateIntervalsWithinMaxRentalDuration*).

This means:

$$\text{rcStartDate}^\sim; \text{rcEndDate} \vdash \text{dateIntervalsWithinMaxRentalDuration} \quad (5.2)$$

Qualified drivers Whenever the driver in a rental contract is known, his/her driving license must be checked for validity. If it is valid, the license number must be registered. P3.3

We use definitions ?? (*rcDriver*) and ?? (*validDrivingLicense*).

This means:

$$\text{rcDriver} \vdash \text{rcDriver}; (I_{\text{Person}} \cap \text{validDrivingLicense}; \text{validDrivingLicense}^\sim) \quad (5.3)$$

Rentable cars The type of car that is requested can only be one for which the pick-up branch has cars available. P3.4

We use definitions ?? (*rcCarType*), ?? (*rcPickupBranch*), ?? (*carAvailableAt*), ?? (*carType*), and ?? (*rentalHasStarted*).

This means:

$$\text{rcPickupBranch}^\sim; (I_{\text{RentalContract}} \cap \overline{\text{rentalHasStarted}}); \text{rcCarType} \vdash \text{carAvailableAt}^\sim; \text{carType} \quad (5.4)$$

Car accountability In order to ensure that cars are not lost 'administratively', every car must be accounted for.

We use definitions ?? (*carAvailableAt*), ?? (*rcIssuedCar*), ?? (*rentalHasStarted*), and ?? (*rentalHasEnded*).

This means:

$$I_{\text{Car}} \vdash \text{rcIssuedCar}^\sim; (\text{rentalHasStarted} \cap \overline{\text{rentalHasEnded}}); \text{rcIssuedCar} \cup \text{carAvailableAt}; \text{carAvailableAt} \quad (5.5)$$

YesNo validity In order to prevent errors from occurring when Yes/No answers are answered differently, it is necessary to check whether such answers are either 'Yes' or 'No'.

This means:

$$I_{\text{YesNo}} \vdash' tYes' \cup' tNo' \quad (5.6)$$

Rented car type integrity In order to ensure that the contents of the contracts are valid, it must be checked whether the car that is issued is of the type that is mentioned in the contract.

We use definitions $??(rcCarType)$, $??(carType)$, and $??(rcIssuedCar)$.
This means:

$$rcIssuedCar \vdash rcCarType; carType^{\sim} \quad (5.7)$$

Keys must be handed over to driver For sanity reasons, the question of whether or not the keys are handed over can only be answered if the driver is known.

We use definitions $??(rcDriver)$ and $??(rcKeysHandedOverQ)$.
This means:

$$I_{RentalContract} \cap rcKeysHandedOverQ; tYes'; rcKeysHandedOverQ^{\sim} \vdash rcDriver; rcDriver^{\sim} \quad (5.8)$$

Auto fill in renter in rental contract When the keys are handed to the driver, and the renter is not specified, we may assume that the driver also fulfills the role of renter, and fill this in the contract.

We use definitions $??(rcRenter)$, $??(rcDriver)$, and $??(rcKeysHandedOverQ)$.
Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rcKeysHandedOverQ; tYes'; rcKeysHandedOverQ^{\sim} \vdash rcRenter; rcRenter^{\sim} \quad (5.9)$$

Starting the rental The event where a rental starts is important for many reasons, a major one being that from that moment onward, payment is due. Therefore, for every rental contract it must be precisely known when this point in time occurs.

We use definitions $??(rcStartDate)$, $??(rcEndDate)$, $??(rcCarType)$, $??(rcPickupBranch)$, $??(rcDropoffBranch)$, $??(rcKeysHandedOverQ)$, $??(rcIssuedCar)$, and $??(rentalHasStarted)$.
Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rcStartDate; rcStartDate^{\sim} \cap rcEndDate; rcEndDate^{\sim} \cap rcCarType; rcCarType^{\sim} \cap rcPickupBranch; rcPickupBranch^{\sim} \cap rcDropoffBranch; rcDropoffBranch^{\sim} \quad (5.10)$$

Dropped-off car type integrity We use definitions $??(rcIssuedCar)$ and $??(rcDroppedOffCar)$.
This means:

$$rcDroppedOffCar \vdash rcIssuedCar \quad (5.11)$$

Ending the rental The event where a rental ends is important. Therefore, for every rental contract it must be precisely known when this point in time occurs.

We use definitions $??(rentalHasStarted)$, $??(rcDroppedOffCar)$, $??(rcDroppedOffDate)$, $??(rcDroppedOffBranch)$, $??(rentalHasEnded)$, and $??(rentalIsPaidQ)$.
Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rentalHasStarted \cap rcDroppedOffCar; rcDroppedOffCar^{\sim} \cap rcDroppedOffDate; rcDroppedOffDate^{\sim} \quad (5.12)$$

Rental charge payment integrity We use definitions ?? (*rentalIsPaidQ*) and ?? (*rentalCharge*).
This means:

$$I_{RentalContract} \cap rentalIsPaidQ; 'tYes'; rentalIsPaidQ \sim \vdash rentalCharge; rentalCharge \sim \quad (5.13)$$

Rental charge computation The rental charge consists of three amounts: the basic rental charge, the penalty charge when the car is returned after the contracted drop-off date, and a penalty charge in case the car is dropped off at a different branch than contractually agreed. P4:2-5

We use definitions ?? (*rentalCharge*), ?? (*rentalBasicCharge*), ?? (*rentalPenaltyCharge*), ?? (*rentalLocationPenaltyCharge*), ?? (*arg1*), ?? (*arg2*), ?? (*arg3*), and ?? (*compRentalCharge*).

Activities that are defined by this rule are finished when:

$$(rentalBasicCharge; arg1 \sim \cap rentalPenaltyCharge; arg2 \sim \cap rentalLocationPenaltyCharge; arg3 \sim); compRentalCharge \vdash \quad (5.14)$$

Rental period computation The period of the actual rental is the difference between the date of the drop-off and the date of the pick-up of the rented car, plus one (so that if the drop-off date and the pick-up date are the same, the period is 1 day). P4.3

We use definitions ?? (*rcStartDate*), ?? (*rcDroppedOffDate*), ?? (*rentalPeriod*), ?? (*earliestDate*), ?? (*latestDate*), and ?? (*compNrDays*).

Activities that are defined by this rule are finished when:

$$(rcStartDate; earliestDate \sim \cap rcDroppedOffDate; latestDate \sim); compNrDays \vdash rentalPeriod \quad (5.15)$$

Basic charge computation The basic rental charge is the product of the period of the actual rental times the daily tariff that is valid for the type of car that was rented. P4.3

We use definitions ?? (*rentalTariffPerDay*), ?? (*carType*), ?? (*rcIssuedCar*), ?? (*rentalPeriod*), ?? (*rentalBasicCharge*), ?? (*ctcNrOfDays*), ?? (*ctcDailyAmount*), and ?? (*compTariffedCharge*).

Activities that are defined by this rule are finished when:

$$(rentalPeriod; ctcNrOfDays \sim \cap rcIssuedCar; carType; rentalTariffPerDay; ctcDailyAmount \sim); compTariffedCharge \vdash \quad (5.16)$$

Excess period computation The excess period of the rental is zero, unless the drop-off date exceeds the contracted end date, in which case the period is the number of days between these two. P4.4

We use definitions ?? (*rcEndDate*), ?? (*rcDroppedOffDate*), ?? (*rentalExcessPeriod*), ?? (*firstDate*), ?? (*lastDate*), and ?? (*compNrExcessDays*).

Activities that are defined by this rule are finished when:

$$(rcDroppedOffDate; lastDate \sim \cap rcEndDate; firstDate \sim); compNrExcessDays \vdash rentalExcessPeriod \quad (5.17)$$

Excess charge computation The penalty charge (for exceeding the contracted rental duration) is basic rental charge is the product of the excess period of the rental times the excess charge per day for the type of car that was rented. P4.4

We use definitions $?? (carType)$, $?? (rcIssuedCar)$, $?? (rentalExcessPeriod)$, $?? (excessTariffPerDay)$, $?? (rentalPenaltyCharge)$, $?? (ctcNrOfDays)$, $?? (ctcDailyAmount)$, and $?? (compTariffedCharge)$.

Activities that are defined by this rule are finished when:

$$(rentalExcessPeriod; ctcNrOfDays \sim \cap rcIssuedCar; carType; excessTariffPerDay; ctcDailyAmount \sim); com \quad (5.18)$$

Location penalty computation The penalty charge for dropping off a rented car another location than was contractually agreed is an amount that depends on the distance between the branches. P4.5

We use definitions $?? (rcDropoffBranch)$, $?? (rcDroppedOffBranch)$, $?? (distpenalty)$, $?? (rentalLocationPenaltyCharge)$, and $?? (distbranch)$.

Activities that are defined by this rule are finished when:

$$(rcDroppedOffBranch; distbranch \sim \cap rcDropoffBranch; distbranch \sim); distpenalty \vdash rentalLocationPenalty \quad (5.19)$$

5.2 Computations

Figure 5.3 shows the process model.

Figure 5.3: Process model of Computations.txtProcess

The conceptual diagram of figure 5.4 provides an overview of the language in which this process is expressed.

Figure 5.4: Basic sentences of ComputationsConceptualProcess

Compute max rental duration We use definitions $?? (branchOf)$, $?? (rcPickupBranch)$, $?? (maxRentalDuration)$, and $?? (rcMaxRentalDuration)$.

Activities that are defined by this rule are finished when:

$$rcPickupBranch; branchOf; maxRentalDuration \vdash rcMaxRentalDuration \quad (5.20)$$

Trigger interval computation We use definitions $??(rcStartDate)$, $??(rcEndDate)$, $??(rcMaxRentalDuration)$, and $??(dateIntervalCompTrigger)$.

Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rcStartDate; rcStartDate \sim \cap rcEndDate; rcEndDate \sim \cap rcMaxRentalDuration; rcMaxRentalDuration \sim \quad (5.21)$$

Uniqueness of rental charge computations We use definitions $??(arg1)$, $??(arg2)$, and $??(arg3)$.

This means:

$$arg1; arg1 \sim \cap arg2; arg2 \sim \cap arg3; arg3 \sim \vdash I_{CompRentalCharge} \quad (5.22)$$

Trigger rental charge computation We use definitions $??(rentalBasicCharge)$, $??(rentalPenaltyCharge)$, $??(rentalLocationPenaltyCharge)$, $??(arg1)$, $??(arg2)$, and $??(arg3)$.

Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rentalBasicCharge; rentalBasicCharge \sim \cap rentalPenaltyCharge; rentalPenaltyCharge \sim \cap rentalLocationPenaltyCharge; rentalLocationPenaltyCharge \sim \quad (5.23)$$

Compute rental charge We use definitions $??(arg1)$, $??(arg2)$, $??(arg3)$, and $??(compRentalCharge)$.

Activities that are defined by this rule are finished when:

$$I_{CompRentalCharge} \vdash compRentalCharge; compRentalCharge \sim \quad (5.24)$$

Uniqueness of period computations We use definitions $??(earliestDate)$ and $??(latestDate)$.

This means:

$$latestDate; latestDate \sim \cap earliestDate; earliestDate \sim \vdash I_{CompNrDays} \quad (5.25)$$

Trigger rental period computation We use definitions $??(rcStartDate)$, $??(rcDroppedOffDate)$, $??(earliestDate)$, and $??(latestDate)$.

Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rcStartDate; rcStartDate \sim \cap rcDroppedOffDate; rcDroppedOffDate \sim \vdash (rcStartDate; earliestDate; latestDate; rcDroppedOffDate) \quad (5.26)$$

Compute number of days in period We use definitions $??(earliestDate)$, $??(latestDate)$, and $??(compNrDays)$.

Activities that are defined by this rule are finished when:

$$I_{CompNrDays} \vdash compNrDays; compNrDays \sim \quad (5.27)$$

Uniqueness of rental charge computations We use definitions ??
 $(ctcNrOfDays)$ and ?? $(ctcDailyAmount)$.
This means:

$$ctcNrOfDays; ctcNrOfDays \sim \cap ctcDailyAmount; ctcDailyAmount \sim \vdash I_{CompTariffedCharge} \quad (5.28)$$

Trigger regular charge computation We use definitions ?? $(rentalTariffPerDay)$, ?? $(carType)$, ?? $(rcIssuedCar)$, ?? $(rentalPeriod)$, ?? $(ctcNrOfDays)$, and ?? $(ctcDailyAmount)$.
Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rentalPeriod; rentalPeriod \sim \cap rcIssuedCar; rcIssuedCar \sim \vdash (rentalPeriod; ctcNrOfDays) \quad (5.29)$$

Trigger excess charge computation We use definitions ?? $(carType)$, ?? $(rcIssuedCar)$, ?? $(rentalExcessPeriod)$, ?? $(excessTariffPerDay)$, ?? $(ctcNrOfDays)$, and ?? $(ctcDailyAmount)$.
Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rentalExcessPeriod; rentalExcessPeriod \sim \vdash (rentalExcessPeriod; ctcNrOfDays \sim \cap rcIssuedCar) \quad (5.30)$$

Compute charge based on number of days We use definitions ?? $(ctcNrOfDays)$, ?? $(ctcDailyAmount)$, and ?? $(compTariffedCharge)$.
Activities that are defined by this rule are finished when:

$$I_{CompTariffedCharge} \vdash compTariffedCharge; compTariffedCharge \sim \quad (5.31)$$

Uniqueness of period computations We use definitions ?? $(firstDate)$ and ?? $(lastDate)$.
This means:

$$firstDate; firstDate \sim \cap lastDate; lastDate \sim \vdash I_{CompNrExcessDays} \quad (5.32)$$

Trigger excess period computation We use definitions ?? $(rcEndDate)$, ?? $(rcDroppedOffDate)$, ?? $(firstDate)$, and ?? $(lastDate)$.
Activities that are defined by this rule are finished when:

$$I_{RentalContract} \cap rcEndDate; rcEndDate \sim \cap rcDroppedOffDate; rcDroppedOffDate \sim \vdash (rcEndDate; firstDate) \quad (5.33)$$

Compute number of excess period days We use definitions ?? $(firstDate)$, ?? $(lastDate)$, and ?? $(compNrExcessDays)$.
Activities that are defined by this rule are finished when:

$$I_{CompNrExcessDays} \vdash compNrExcessDays; compNrExcessDays \sim \quad (5.34)$$

Completeness of distance table We use definition ?? (distbranch).

This means:

$$\overline{I_{Branch}} \vdash distbranch^\sim; distbranch \quad (5.35)$$

5.3 Automated field completion

Figure 5.5 shows the process model.

Figure 5.5: Process model of Automated field completiontxtProcess

The conceptual diagram of figure 5.6 provides an overview of the language in which this process is expressed.

Figure 5.6: Basic sentences of Automated field completionConceptualProcess

Auto fill in fields of new rental contract To arrive at the formalization in equation 5.40, the following three relations are introduced.

$$sessionRC : SESSION \times RentalContract \quad (5.36)$$

$$sessionBranch : SESSION \times Branch \quad (5.37)$$

$$sessionToday : SESSION \times Date \quad (5.38)$$

We also use definitions ?? ($rcStartDate$) and ?? ($rcPickupBranch$).

Activities that are defined by this rule are finished when:

$$sessionRC \vdash sessionRC; (I_{RentalContract} \cap rcPickupBranch; rcPickupBranch^\sim \cap rcStartDate; rcStartDate) \quad (5.39)$$

This corresponds to ‘Auto fill in fields of new rental contract’ (?? op pg. ??).

Auto fill in fields of new rental contract We use definitions 5.36 ($sessionRC$), 5.37 ($sessionBranch$), 5.38 ($sessionToday$), ?? ($rcDroppedOffCar$), ?? ($rcDroppedOffDate$), and ?? ($rcDroppedOffBranch$).

Activities that are defined by this rule are finished when:

$$rcDroppedOffCar \vdash (I_{RentalContract} \cap rcDroppedOffBranch; rcDroppedOffBranch^\sim \cap rcDroppedOffDate; rcDroppedOffDate) \quad (5.40)$$

Chapter 6

Data structure

This chapter contains the result of the data analysis. It is structured as follows:

We start with the classification model, followed by a list of all relations, that are the foundation of the rest of the analysis. Finally, the logical and technical data model are discussed.

6.1 Classifications

No classifications have been defined

6.2 Fact types

This section enumerates the fact types, that have been used in the design of the datastructure. For each fact type its name, the source and target concept and the properties are documented.

branchOf : *Branch* \times *CarRentalCompany* Every branch is part of a car rental company.

Properties: UNI, TOT

branchLocation : *Branch* \times *Location* Every branch operates from a geographical location.

Properties: UNI, TOT

brand : *CarType* \times *Brand* A cartype has a specific brand.

Properties: UNI, TOT

model : *CarType* \times *Model* A cartype has a specific model.

Properties: UNI, TOT

rentalTariffPerDay : *CarType* \times *Amount* All car types have a specified rental tariff (Euros/day).

Properties: UNI, TOT

rcStartDate : *RentalContract* \times *Date* Rental contracts may specify the actual (and contractual) start date of the rental.

Properties: UNI

rcEndDate : *RentalContract* \times *Date* Rental contracts may specify the (contractual) end date of the rental.

Properties: UNI

rcCarType : *RentalContract* \times *CarType* Rental contracts may specify the car type of the rental.

Properties: UNI

rcPickupBranch : *RentalContract* \times *Branch* Rental contracts may specify the branch where the rental starts (i.e.: the car is picked up).

Properties: UNI

rcDropoffBranch : *RentalContract* \times *Branch* Rental contracts may specify the branch where the rental supposedly ends (i.e.: the car is dropped off).

Properties: UNI

dateIntervalIsWithinMaxRentalDuration : *Date* \times *Date* the date interval (e.g.: [start date,end date]) is within the maximum rental duration as specified by EURent.

Properties: --

rcRenter : *RentalContract* \times *Person* The person who rents the car is called the renter.

Properties: UNI

rcDriver : *RentalContract* \times *Person* The person who is going to drive is called the driver.

Properties: UNI

validDrivingLicense : *Person* \times *DrivingLicense* A person may have a valid driving license.

Properties: --

carAvailableAt : *Car* \times *Branch* It is known which cars are available at a branch.

Properties: UNI, TOT

carType : *Car* \times *CarType* Every car is of a specific type (brand, model).

Properties: UNI, TOT

rcKeysHandedOverQ : *RentalContract* \times *YesNo* Branches must register the handover of car keys (i.e. the responsibility for the car).

Properties: --

rcIssuedCar : *RentalContract* \times *Car* Rental contracts specify the car that is (to be) issued to the driver.

Properties: UNI, SUR

rentalHasStarted : *RentalContract* \times *RentalContract* The property 'Rental has started' is a property that every rental contract has for which the associated rental has started.

Properties: --

rcDroppedOffCar : *RentalContract* \times *Car* Rental contracts may specify the car that has actually been dropped off.

Properties: UNI

rcDroppedOffDate : *RentalContract* \times *Date* Rented cars are dropped off on specific dates.

Properties: UNI

rcDroppedOffBranch : *RentalContract* \times *Branch* Rented cars must be dropped off at a specific branch.

Properties: UNI

rentalHasEnded : *RentalContract* \times *RentalContract* The property 'Rental has ended' is a property that every rental contract has for which the associated rental has ended.

Properties: --

rentalIsPaidQ : *RentalContract* \times *YesNo* Payments for rental contracts need to be accepted (or declined).

Properties: --

rentalCharge : *RentalContract* \times *Amount* **Properties:** UNI

rentalPeriod : *RentalContract* \times *Integer* **Properties:** UNI

rentalBasicCharge : *RentalContract* \times *Amount* Rental contracts may specify an amount for the basic charge

Properties: UNI

rentalExcessPeriod : *RentalContract* \times *Integer* **Properties:** UNI

excessTariffPerDay : *CarType* \times *Amount* All car types have a specified excess tariff (Euro/day)

Properties: UNI, TOT

rentalPenaltyCharge : *RentalContract* \times *Amount* Rental contracts may specify an amount for the penalty charge for late drop-offs

Properties: UNI

distpenalty : *DistanceBetweenLocations* \times *Amount* There is a penalty charge for cars that are dropped-off at another branch than agreed.

Properties: UNI, TOT

rentalLocationPenaltyCharge : *RentalContract* \times *Amount* Rental contracts may specify an amount for the penalty charge for late drop-offs

Properties: UNI

maxRentalDuration : *CarRentalCompany* \times *MaxRentalDuration*

Rental companies must have specified the maximum duration of a rental.

Properties: --

rcMaxRentalDuration : *RentalContract* \times *MaxRentalDuration*

Rental contracts may specify the maximum rental duration.

Properties: UNI

dateIntervalCompTrigger : *Date* \times *Date* **Properties:** --

arg1 : *CompRentalCharge* \times *Amount* **Properties:** UNI, TOT

arg2 : *CompRentalCharge* \times *Amount* **Properties:** UNI, TOT

arg3 : *CompRentalCharge* \times *Amount* **Properties:** UNI, TOT

compRentalCharge : *CompRentalCharge* \times *Amount* **Properties:** UNI

earliestDate : *CompNrDays* \times *Date* **Properties:** UNI, TOT

latestDate : *CompNrDays* \times *Date* **Properties:** UNI, TOT

compNrDays : *CompNrDays* \times *Integer* **Properties:** UNI

ctcNrOfDays : *CompTariffedCharge* \times *Integer* **Properties:** UNI, TOT

ctcDailyAmount : *CompTariffedCharge* \times *Amount* **Properties:** UNI, TOT

compTariffedCharge : *CompTariffedCharge* \times *Amount* **Properties:** UNI

firstDate : *CompNrExcessDays* \times *Date* **Properties:** UNI, TOT

lastDate : *CompNrExcessDays* \times *Date* **Properties:** UNI, TOT

compNrExcessDays : *CompNrExcessDays* \times *Integer* **Properties:** UNI

distbranch : *DistanceBetweenLocations* \times *Branch* A distance is computed relative to a branch.

Properties: TOT, SUR

distance : *DistanceBetweenLocations* \times *Distance* There may be a distance between locations.

Properties: UNI, TOT

sessionBranch : *SESSION* \times *Branch* **Properties:** UNI

sessionToday : *SESSION* \times *Date* **Properties:** UNI

sessionRC : *SESSION* \times *RentalContract* **Properties:** INJ, UNI

6.3 Logical datamodel

The functional requirements have been translated into a data model. This model is shown by figure 6.1.

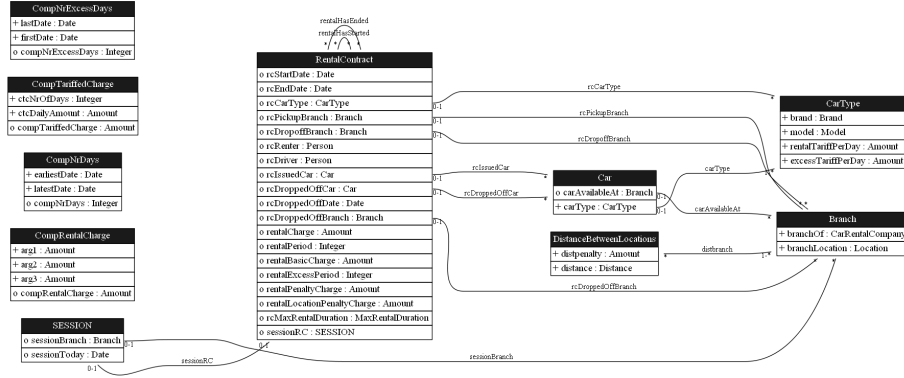


Figure 6.1: Logical data model of EURent

There are 10 entity types. The details of each entity type are described (in alphabetical order) in the following paragraphs:

6.3.1 Entity type: *Branch*

This entity type has the following attributes:

Attribute	Type	
Id	Branch	Primary key
branchOf	CarRentalCompany	Mandatory
branchLocation	Location	Mandatory

Branch has the following associations:

1. Every *RentalContract* 'rcPickupBranch' zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *RentalContract*.
2. Every *RentalContract* 'rcDropoffBranch' zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *RentalContract*.
3. Every *Car* 'carAvailableAt' zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *Car*.

4. Every *RentalContract* ‘rcDroppedOffBranch’ zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *RentalContract*.
5. Every *DistanceBetweenLocations* must ‘distbranch’ at least one *Branch*. For the other way round, for this relation holds that each *Branch* zero or more *DistanceBetweenLocations*.
6. Every *SESSION* ‘sessionBranch’ zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *SESSION*.

6.3.2 Entity type: *Car*

This entity type has the following attributes:

Attribute	Type	
Id	Car	Primary key
carAvailableAt	Branch	Optional
carType	CarType	Mandatory

Car has the following associations:

1. Every *Car* ‘carAvailableAt’ zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *Car*.
2. Every *Car* must ‘carType’ at least one *CarType*. For the other way round, for this relation holds that each *CarType* at most one *Car*.
3. Every *RentalContract* ‘rcIssuedCar’ zero or more *Car*. For the other way round, for this relation holds that each *Car* at most one *RentalContract*.
4. Every *RentalContract* ‘rcDroppedOffCar’ zero or more *Car*. For the other way round, for this relation holds that each *Car* at most one *RentalContract*.

6.3.3 Entity type: *CarType*

This entity type has the following attributes:

Attribute	Type	
Id	CarType	Primary key
brand	Brand	Mandatory
model	Model	Mandatory
rentalTariffPerDay	Amount	Mandatory
excessTariffPerDay	Amount	Mandatory

CarType has the following associations:

1. Every *RentalContract* 'rcCarType' zero or more *CarType*. For the other way round, for this relation holds that each *CarType* at most one *RentalContract*.
2. Every *Car* must 'carType' at least one *CarType*. For the other way round, for this relation holds that each *CarType* at most one *Car*.

6.3.4 Entity type: *CompNrDays*

This entity type has the following attributes:

Attribute	Type	
Id	CompNrDays	Primary key
earliestDate	Date	Mandatory
latestDate	Date	Mandatory
compNrDays	Integer	Optional

CompNrDays has the following associations:

6.3.5 Entity type: *CompNrExcessDays*

This entity type has the following attributes:

Attribute	Type	
Id	CompNrExcessDays	Primary key
lastDate	Date	Mandatory
firstDate	Date	Mandatory
compNrExcessDays	Integer	Optional

CompNrExcessDays has the following associations:

6.3.6 Entity type: *CompRentalCharge*

This entity type has the following attributes:

Attribute	Type
-----------	------

Id	CompRentalCharge	Primary key
arg1	Amount	Mandatory
arg2	Amount	Mandatory
arg3	Amount	Mandatory
compRentalCharge	Amount	Optional

CompRentalCharge has the following associations:

6.3.7 Entity type: *CompTariffedCharge*

This entity type has the following attributes:

Attribute	Type	
Id	CompTariffedCharge	Primary key
ctcNrOfDays	Integer	Mandatory
ctcDailyAmount	Amount	Mandatory
compTariffedCharge	Amount	Optional

CompTariffedCharge has the following associations:

6.3.8 Entity type: *DistanceBetweenLocations*

This entity type has the following attributes:

Attribute	Type	
Id	DistanceBetweenLocations	Primary key
distpenalty	Amount	Mandatory
distance	Distance	Mandatory

DistanceBetweenLocations has the following associations:

1. Every *DistanceBetweenLocations* must ‘distbranch’ at least one *Branch*. For the other way round, for this relation holds that each *Branch* zero or more *DistanceBetweenLocations*.

6.3.9 Entity type: *RentalContract*

This entity type has the following attributes:

Attribute	Type	
Id	RentalContract	Primary key
rcStartDate	Date	Optional
rcEndDate	Date	Optional
rcCarType	CarType	Optional
rcPickupBranch	Branch	Optional
rcDropoffBranch	Branch	Optional
rcRenter	Person	Optional
rcDriver	Person	Optional
rcIssuedCar	Car	Optional
rcDroppedOffCar	Car	Optional
rcDroppedOffDate	Date	Optional
rcDroppedOffBranch	Branch	Optional
rentalCharge	Amount	Optional
rentalPeriod	Integer	Optional
rentalBasicCharge	Amount	Optional
rentalExcessPeriod	Integer	Optional
rentalPenaltyCharge	Amount	Optional
rentalLocationPenaltyCharge	Amount	Optional
rcMaxRentalDuration	MaxRentalDuration	Optional
sessionRC	SESSION	Optional

RentalContract has the following associations:

1. Every *RentalContract* ‘rcCarType’ zero or more *CarType*. For the other way round, for this relation holds that each *CarType* at most one *RentalContract*.
2. Every *RentalContract* ‘rcPickupBranch’ zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *RentalContract*.
3. Every *RentalContract* ‘rcDropoffBranch’ zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *RentalContract*.

4. Every *RentalContract* 'rcIssuedCar' zero or more *Car*. For the other way round, for this relation holds that each *Car* at most one *RentalContract*.
5. Every *RentalContract* 'rentalHasStarted' zero or more *RentalContract*. For the other way round, for this relation holds that each *RentalContract* zero or more *RentalContract*.
6. Every *RentalContract* 'rcDroppedOffCar' zero or more *Car*. For the other way round, for this relation holds that each *Car* at most one *RentalContract*.
7. Every *RentalContract* 'rcDroppedOffBranch' zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *RentalContract*.
8. Every *RentalContract* 'rentalHasEnded' zero or more *RentalContract*. For the other way round, for this relation holds that each *RentalContract* zero or more *RentalContract*.
9. Every *SESSION* 'sessionRC' at most one *RentalContract*. For the other way round, for this relation holds that each *RentalContract* at most one *SESSION*.

6.3.10 Entity type: *SESSION*

This entity type has the following attributes:

Attribute	Type	
Id	SESSION	Primary key
sessionBranch	Branch	Optional
sessionToday	Date	Optional

SESSION has the following associations:

1. Every *SESSION* 'sessionRC' at most one *RentalContract*. For the other way round, for this relation holds that each *RentalContract* at most one *SESSION*.
2. Every *SESSION* 'sessionBranch' zero or more *Branch*. For the other way round, for this relation holds that each *Branch* at most one *SESSION*.

6.4 Technical datamodel

The functional requirements have been translated into a technical data model. This model is shown by figure 6.2.

The technical datamodel consists of the following 31 tables:

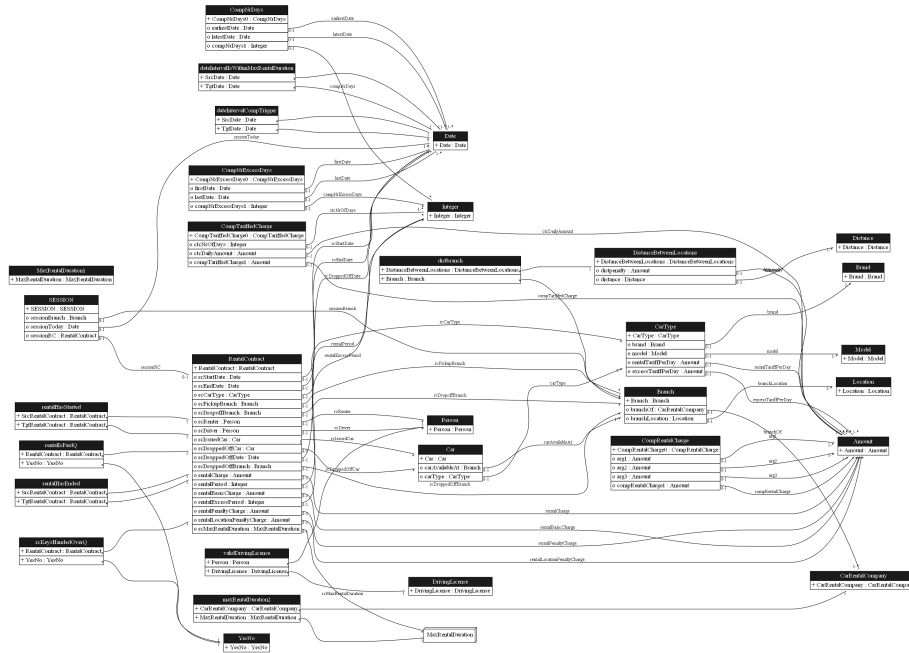


Figure 6.2: Technical data model of EURent

6.4.1 Table: Amount

This table has the following 1 fields:

- **Amount**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.2 Table: Branch

This table has the following 3 fields:

- **Branch**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **branchOf**
This attribute implements the relation $Branch \xrightarrow{\text{branchOf}} CarRentalCompany$.
SQLVarchar 255, Optional.
- **branchLocation**
This attribute implements the relation $Branch \xrightarrow{\text{branchLocation}} Location$.
SQLVarchar 255, Optional.

6.4.3 Table: Brand

This table has the following 1 fields:

- **Brand**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.4 Table: Car

This table has the following 3 fields:

- **Car**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **carAvailableAt**
This attribute implements the relation $Car \xrightarrow{carAvailableAt} Branch$.
SQLVarchar 255, Optional.
- **carType**
This attribute implements the relation $Car \xrightarrow{carType} CarType$.
SQLVarchar 255, Optional.

6.4.5 Table: CarRentalCompany

This table has the following 1 fields:

- **CarRentalCompany**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.6 Table: CarType

This table has the following 5 fields:

- **CarType**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **brand**
This attribute implements the relation $CarType \xrightarrow{brand} Brand$.
SQLVarchar 255, Optional.
- **model**
This attribute implements the relation $CarType \xrightarrow{model} Model$.
SQLVarchar 255, Optional.

- **rentalTariffPerDay**

This attribute implements the relation $CarType \xrightarrow{rentalTariffPerDay} Amount$.
SQLVarchar 255, Optional.

- **excessTariffPerDay**

This attribute implements the relation $CarType \xrightarrow{excessTariffPerDay} Amount$.
SQLVarchar 255, Optional.

6.4.7 Table: CompNrDays

This table has the following 4 fields:

- **CompNrDays0**

This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

- **earliestDate**

This attribute implements the relation $CompNrDays \xrightarrow{earliestDate} Date$.
SQLVarchar 255, Optional.

- **latestDate**

This attribute implements the relation $CompNrDays \xrightarrow{latestDate} Date$.
SQLVarchar 255, Optional.

- **compNrDays1**

This attribute implements the relation $CompNrDays \xrightarrow{compNrDays} Integer$.
SQLVarchar 255, Optional.

6.4.8 Table: CompNrExcessDays

This table has the following 4 fields:

- **CompNrExcessDays0**

This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

- **firstDate**

This attribute implements the relation $CompNrExcessDays \xrightarrow{firstDate} Date$.
SQLVarchar 255, Optional.

- **lastDate**

This attribute implements the relation $CompNrExcessDays \xrightarrow{lastDate} Date$.
SQLVarchar 255, Optional.

- **compNrExcessDays1**

This attribute implements the relation $CompNrExcessDays \xrightarrow{compNrExcessDays} Integer$.
SQLVarchar 255, Optional.

6.4.9 Table: CompRentalCharge

This table has the following 5 fields:

- **CompRentalCharge0**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **arg1**
This attribute implements the relation $CompRentalCharge \xrightarrow{arg1} Amount$.
SQLVarchar 255, Optional.
- **arg2**
This attribute implements the relation $CompRentalCharge \xrightarrow{arg2} Amount$.
SQLVarchar 255, Optional.
- **arg3**
This attribute implements the relation $CompRentalCharge \xrightarrow{arg3} Amount$.
SQLVarchar 255, Optional.
- **compRentalCharge1**
This attribute implements the relation $CompRentalCharge \xrightarrow{compRentalCharge} Amount$.
SQLVarchar 255, Optional.

6.4.10 Table: CompTariffedCharge

This table has the following 4 fields:

- **CompTariffedCharge0**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **ctcNrOfDays**
This attribute implements the relation $CompTariffedCharge \xrightarrow{ctcNrOfDays} Integer$.
SQLVarchar 255, Optional.
- **ctcDailyAmount**
This attribute implements the relation $CompTariffedCharge \xrightarrow{ctcDailyAmount} Amount$.
SQLVarchar 255, Optional.
- **compTariffedCharge1**
This attribute implements the relation $CompTariffedCharge \xrightarrow{compTariffedCharge} Amount$.
SQLVarchar 255, Optional.

6.4.11 Table: Date

This table has the following 1 fields:

- **Date**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.12 Table: Distance

This table has the following 1 fields:

- **Distance**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.13 Table: DistanceBetweenLocations

This table has the following 3 fields:

- **DistanceBetweenLocations**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **distpenalty**
This attribute implements the relation $DistanceBetweenLocations \xrightarrow{distpenalty} Amount$.
SQLVarchar 255, Optional.
- **distance**
This attribute implements the relation $DistanceBetweenLocations \xrightarrow{distance} Distance$.
SQLVarchar 255, Optional.

6.4.14 Table: DrivingLicense

This table has the following 1 fields:

- **DrivingLicense**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.15 Table: Integer

This table has the following 1 fields:

- **Integer**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.16 Table: Location

This table has the following 1 fields:

- **Location**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.17 Table: MaxRentalDuration1

This table has the following 1 fields:

- **MaxRentalDuration**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.18 Table: Model

This table has the following 1 fields:

- **Model**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.19 Table: Person

This table has the following 1 fields:

- **Person**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.20 Table: RentalContract

This table has the following 19 fields:

- **RentalContract**
This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.
- **rcStartDate**
This attribute implements the relation $RentalContract \xrightarrow{rcStartDate} Date$.
SQLVarchar 255, Optional.
- **rcEndDate**
This attribute implements the relation $RentalContract \xrightarrow{rcEndDate} Date$.
SQLVarchar 255, Optional.
- **rcCarType**
This attribute implements the relation $RentalContract \xrightarrow{rcCarType} CarType$.
SQLVarchar 255, Optional.
- **rcPickupBranch**
This attribute implements the relation $RentalContract \xrightarrow{rcPickupBranch} Branch$.
SQLVarchar 255, Optional.

- **rcDropoffBranch**
This attribute implements the relation $RentalContract \xrightarrow{rcDropoffBranch} Branch$.
SQLVarchar 255, Optional.
- **rcRenter**
This attribute implements the relation $RentalContract \xrightarrow{rcRenter} Person$.
SQLVarchar 255, Optional.
- **rcDriver**
This attribute implements the relation $RentalContract \xrightarrow{rcDriver} Person$.
SQLVarchar 255, Optional.
- **rcIssuedCar**
This attribute implements the relation $RentalContract \xrightarrow{rcIssuedCar} Car$.
SQLVarchar 255, Optional.
- **rcDroppedOffCar**
This attribute implements the relation $RentalContract \xrightarrow{rcDroppedOffCar} Car$.
SQLVarchar 255, Optional.
- **rcDroppedOffDate**
This attribute implements the relation $RentalContract \xrightarrow{rcDroppedOffDate} Date$.
SQLVarchar 255, Optional.
- **rcDroppedOffBranch**
This attribute implements the relation $RentalContract \xrightarrow{rcDroppedOffBranch} Branch$.
SQLVarchar 255, Optional.
- **rentalCharge**
This attribute implements the relation $RentalContract \xrightarrow{rentalCharge} Amount$.
SQLVarchar 255, Optional.
- **rentalPeriod**
This attribute implements the relation $RentalContract \xrightarrow{rentalPeriod} Integer$.
SQLVarchar 255, Optional.
- **rentalBasicCharge**
This attribute implements the relation $RentalContract \xrightarrow{rentalBasicCharge} Amount$.
SQLVarchar 255, Optional.
- **rentalExcessPeriod**
This attribute implements the relation $RentalContract \xrightarrow{rentalExcessPeriod} Integer$.
SQLVarchar 255, Optional.
- **rentalPenaltyCharge**
This attribute implements the relation $RentalContract \xrightarrow{rentalPenaltyCharge} Amount$.
SQLVarchar 255, Optional.
- **rentalLocationPenaltyCharge**
This attribute implements the relation $RentalContract \xrightarrow{rentalLocationPenaltyCharge} Amount$.
SQLVarchar 255, Optional.

- **rcMaxRentalDuration**

This attribute implements the relation $RentalContract \xrightarrow{rcMaxRentalDuration} MaxRentalDuration$.
SQLVarchar 255, Optional.

6.4.21 Table: SESSION

This table has the following 4 fields:

- **SESSION**

This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

- **sessionBranch**

This attribute implements the relation $SESSION \xrightarrow{sessionBranch} Branch$.
SQLVarchar 255, Optional.

- **sessionToday**

This attribute implements the relation $SESSION \xrightarrow{sessionToday} Date$.
SQLVarchar 255, Optional.

- **sessionRC**

This attribute implements the relation $SESSION \xrightarrow{sessionRC} RentalContract$.
SQLVarchar 255, Optional, Unique.

6.4.22 Table: YesNo

This table has the following 1 fields:

- **YesNo**

This attribute is the primary key.
SQLVarchar 255, Mandatory, Unique.

6.4.23 Table: dateIntervalCompTrigger

This is a link-table, implementing the relation $Date \xrightarrow{dateIntervalCompTrigger} Date$.
It contains the following columns:

- **SrcDate**

This attribute is a foreign key to Date
SQLVarchar 255, Mandatory.

- **TgtDate**

This attribute implements the relation $Date \xrightarrow{dateIntervalCompTrigger} Date$.
SQLVarchar 255, Mandatory.

6.4.24 Table: dateIntervalsWithinMaxRentalDuration

This is a link-table, implementing the relation $Date \xrightarrow{\text{dateIntervalsWithinMaxRentalDuration}} Date$. It contains the following columns:

- **SrcDate**
This attribute is a foreign key to Date
SQLVarchar 255, Mandatory.
- **TgtDate**
This attribute implements the relation $Date \xrightarrow{\text{dateIntervalsWithinMaxRentalDuration}} Date$.
SQLVarchar 255, Mandatory.

6.4.25 Table: distbranch

This is a link-table, implementing the relation $DistanceBetweenLocations \xrightarrow{\text{distbranch}} Branch$. It contains the following columns:

- **DistanceBetweenLocations**
This attribute is the primary key.
SQLVarchar 255, Optional.
- **Branch**
This attribute implements the relation $DistanceBetweenLocations \xrightarrow{\text{distbranch}} Branch$.
SQLVarchar 255, Optional.

6.4.26 Table: maxRentalDuration2

This is a link-table, implementing the relation $CarRentalCompany \xrightarrow{\text{maxRentalDuration}} MaxRentalDuration$. It contains the following columns:

- **CarRentalCompany**
This attribute is a foreign key to CarRentalCompany
SQLVarchar 255, Mandatory.
- **MaxRentalDuration**
This attribute implements the relation $CarRentalCompany \xrightarrow{\text{maxRentalDuration}} MaxRentalDuration$.
SQLVarchar 255, Mandatory.

6.4.27 Table: rcKeysHandedOverQ

This is a link-table, implementing the relation $RentalContract \xrightarrow{\text{rcKeysHandedOverQ}} YesNo$. It contains the following columns:

- **RentalContract**
This attribute is a foreign key to RentalContract
SQLVarchar 255, Mandatory.

- **YesNo**

This attribute implements the relation $RentalContract \xrightarrow{rcKeysHandedOverQ} YesNo$.
SQLVarchar 255, Mandatory.

6.4.28 Table: rentalHasEnded

This is a link-table, implementing the relation $RentalContract \xrightarrow{rentalHasEnded} RentalContract$.
It contains the following columns:

- **SrcRentalContract**

This attribute is a foreign key to RentalContract
SQLVarchar 255, Mandatory.

- **TgtRentalContract**

This attribute implements the relation $RentalContract \xrightarrow{rentalHasEnded} RentalContract$.
SQLVarchar 255, Mandatory.

6.4.29 Table: rentalHasStarted

This is a link-table, implementing the relation $RentalContract \xrightarrow{rentalHasStarted} RentalContract$.
It contains the following columns:

- **SrcRentalContract**

This attribute is a foreign key to RentalContract
SQLVarchar 255, Mandatory.

- **TgtRentalContract**

This attribute implements the relation $RentalContract \xrightarrow{rentalHasStarted} RentalContract$.
SQLVarchar 255, Mandatory.

6.4.30 Table: rentalIsPaidQ

This is a link-table, implementing the relation $RentalContract \xrightarrow{rentalIsPaidQ} YesNo$.
It contains the following columns:

- **RentalContract**

This attribute is a foreign key to RentalContract
SQLVarchar 255, Mandatory.

- **YesNo**

This attribute implements the relation $RentalContract \xrightarrow{rentalIsPaidQ} YesNo$.
SQLVarchar 255, Mandatory.

6.4.31 Table: validDrivingLicense

This is a link-table, implementing the relation $Person \xrightarrow{\text{validDrivingLicense}} DrivingLicense$.
It contains the following columns:

- **Person**

This attribute is a foreign key to Person
SQLVarchar 255, Mandatory.

- **DrivingLicense**

This attribute implements the relation $Person \xrightarrow{\text{validDrivingLicense}} DrivingLicense$.
SQLVarchar 255, Mandatory.

Chapter 7

ECA rules (Flash points)

This chapter lists the ECA rules.

ECA rules:
temporarily not documented

```
ON INSERT Delta IN branchOf[Branch*CarRentalCompany] EXECUTE    -- (ECA rule 1)
BLOCK
(CANNOT CHANGE 'EU-Rent'[CarRentalCompany] FROM EURent branches)
```

----- Derivation ----->

```
BLOCK
(CANNOT CHANGE 'EU-Rent'[CarRentalCompany] FROM EURent branches)
```

<-----End Derivation --

```
ON DELETE Delta FROM branchOf[Branch*CarRentalCompany] EXECUTE    -- (ECA rule 2)
ONE OF DELETE FROM branchOf[Branch*CarRentalCompany]
    SELECTFROM -((branchOf /\ -Delta);'EU-Rent'[CarRentalCompany]) /\ branchOf

    (TO MAINTAIN -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent)
DELETE FROM branchOf[Branch*CarRentalCompany]
    SELECTFROM ((-branchOf /\ branchOf;'EU-Rent'[CarRentalCompany]) \/ (Delta))

    (TO MAINTAIN -(branchOf;'EU-Rent'[CarRentalCompany]) \/ branchOf FROM EURent)
DELETE FROM Isn{detyp=Branch}
    SELECTFROM -((branchOf /\ -Delta);'EU-Rent'[CarRentalCompany]);(branchOf /\ branchOf)

    (TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'[CarRentalCompany];branchOf /\ branchOf)
```

```

DELETE FROM Isn{dety=Branch}
SELECTFROM -((branchOf /\ -Delta);(branchOf /\ -Delta)~) /\ I[Branch]

(TO MAINTAIN -I[Branch] \/ branchOf;I[CarRentalCompany];branchOf~ FROM UNI br
(MAINTAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branc
(MAINTAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branc
(MAINTAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branc
(MAINTAINING -(branchOf~;branchOf) \/ I[CarRentalCompany] FROM UNI branchOf::Bra
(MAINTAINING -I[Branch] \/ branchOf;branchOf~ FROM TOT branchOf::Branch*CarRenta

```

----- Derivation ----->

```

ONE OF DELETE FROM branchOf[Branch*CarRentalCompany]
SELECTFROM -((branchOf /\ -Delta);'EU-Rent'[CarRentalCompany]) /\ branchOf

(TO MAINTAIN -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent br
DELETE FROM branchOf[Branch*CarRentalCompany]
SELECTFROM ((-branchOf /\ branchOf;'EU-Rent'[CarRentalCompany]) \/ (Delta /\

(TO MAINTAIN -(branchOf;'EU-Rent'[CarRentalCompany]) \/ branchOf FROM EURent
DELETE FROM Isn{dety=Branch}
SELECTFROM -((branchOf /\ -Delta);'EU-Rent'[CarRentalCompany];(branchOf /\ -D

(TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'[CarRentalCompany];branchOf~ FROM
DELETE FROM Isn{dety=Branch}
SELECTFROM -((branchOf /\ -Delta);(branchOf /\ -Delta)~) /\ I[Branch]

(TO MAINTAIN -I[Branch] \/ branchOf;I[CarRentalCompany];branchOf~ FROM UNI br
(MAINTAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branches)
(MAINTAINING -(branchOf~;branchOf) \/ I[CarRentalCompany] FROM UNI branchOf::Branch*C
(MAINTAINING -I[Branch] \/ branchOf;branchOf~ FROM TOT branchOf::Branch*CarRentalComp

```

<-----End Derivation --

```

ON INSERT Delta IN branchLocation[Branch*Location] EXECUTE -- (ECA rule 3)
ONE OF INSERT INTO Isn{dety=Location}
SELECTFROM ((branchLocation \/ Delta)~;branchLocation /\ -I[Location]) \

(TO MAINTAIN -(branchLocation~;branchLocation) \/ I[Location] FROM UNI b
INSERT INTO Isn{dety=Branch}
SELECTFROM (Delta;Delta~ /\ I[Branch]) - I[Branch]

INSERT INTO Isn{dety=Location}
SELECTFROM (Delta~;Delta /\ I[Location]) - I[Location]

```

```

(MAINAINING -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLoc
(MAINAINING -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocation:

```

----- Derivation ----->

```

ONE OF INSERT INTO Isn{dety=Location}
    SELECTFROM ((branchLocation \/ Delta)~;branchLocation /\ -I[Location]) \/ ((b

    (TO MAINTAIN -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branch
INSERT INTO Isn{dety=Branch}
    SELECTFROM (Delta;Delta~ /\ I[Branch]) - I[Branch]

INSERT INTO Isn{dety=Location}
    SELECTFROM (Delta~;Delta /\ I[Location]) - I[Location]

(MAINAINING -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLocation
(MAINAINING -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocation::Br

```

<-----End Derivation --

```

ON DELETE Delta FROM branchLocation[Branch*Location] EXECUTE    -- (ECA rule 4)
DELETE FROM Isn{dety=Branch}
    SELECTFROM -((branchLocation /\ -Delta);(branchLocation /\ -Delta)~) /\ I[Branch]

    (TO MAINTAIN -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLo
    (TO MAINTAIN -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocati

```

----- Derivation ----->

```

DELETE FROM Isn{dety=Branch}
    SELECTFROM -((branchLocation /\ -Delta);(branchLocation /\ -Delta)~) /\ I[Branch]

    (TO MAINTAIN -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLocati
    (TO MAINTAIN -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocation::B

```

<-----End Derivation --

```

ON INSERT Delta IN brand[CarType*Brand] EXECUTE    -- (ECA rule 5)
ONE OF INSERT INTO Isn{dety=Brand}
    SELECTFROM ((brand \/ Delta)~;brand /\ -I[Brand]) \/ ((brand \/ Delta)~;

    (TO MAINTAIN -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
INSERT INTO Isn{dety=CarType}
    SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

```

```

INSERT INTO Isn{dety=Brand}
SELECTFROM (Delta~;Delta /\ I[Brand]) - I[Brand]

(MAINTEINING -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(MAINTEINING -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)

----- Derivation ----->

ONE OF INSERT INTO Isn{dety=Brand}
SELECTFROM ((brand \/ Delta)~;brand /\ -I[Brand]) \/ ((brand \/ Delta)~;Delta)

(TO MAINTAIN -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
INSERT INTO Isn{dety=CarType}
SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

INSERT INTO Isn{dety=Brand}
SELECTFROM (Delta~;Delta /\ I[Brand]) - I[Brand]

(MAINTEINING -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(MAINTEINING -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)

<-----End Derivation --

ON DELETE Delta FROM brand[CarType*Brand] EXECUTE -- (ECA rule 6)
DELETE FROM Isn{dety=CarType}
SELECTFROM -((brand /\ -Delta);(brand /\ -Delta)~) /\ I[CarType]

(TO MAINTAIN -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(TO MAINTAIN -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)

----- Derivation ----->

DELETE FROM Isn{dety=CarType}
SELECTFROM -((brand /\ -Delta);(brand /\ -Delta)~) /\ I[CarType]

(TO MAINTAIN -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(TO MAINTAIN -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)

<-----End Derivation --

ON INSERT Delta IN model[CarType*Model] EXECUTE -- (ECA rule 7)
ONE OF INSERT INTO Isn{dety=Model}
SELECTFROM ((model \/ Delta)~;model /\ -I[Model]) \/ ((model \/ Delta)~;

```

```

      (TO MAINTAIN  -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      INSERT INTO Isn{dety=CarType}
      SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

      INSERT INTO Isn{dety=Model}
      SELECTFROM (Delta~;Delta /\ I[Model]) - I[Model]

      (MAINTAINING -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      (MAINTAINING -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)

```

----- Derivation ----->

```

ONE OF INSERT INTO Isn{dety=Model}
      SELECTFROM ((model \/ Delta)~;model /\ -I[Model]) \/ ((model \/ Delta)~;Delta~;model /\ -I[Model])

      (TO MAINTAIN  -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      INSERT INTO Isn{dety=CarType}
      SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

      INSERT INTO Isn{dety=Model}
      SELECTFROM (Delta~;Delta /\ I[Model]) - I[Model]

      (MAINTAINING -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      (MAINTAINING -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)

```

<-----End Derivation --

```

ON DELETE Delta FROM model[CarType*Model] EXECUTE      -- (ECA rule 8)
DELETE FROM Isn{dety=CarType}
      SELECTFROM -((model /\ -Delta);(model /\ -Delta)~) /\ I[CarType]

      (TO MAINTAIN  -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      (TO MAINTAIN  -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)

```

----- Derivation ----->

```

DELETE FROM Isn{dety=CarType}
      SELECTFROM -((model /\ -Delta);(model /\ -Delta)~) /\ I[CarType]

      (TO MAINTAIN  -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      (TO MAINTAIN  -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)

```

<-----End Derivation --

```

ON INSERT Delta IN rentalTariffPerDay[CarType*Amount] EXECUTE    -- (ECA rule 9)
ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
      SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTari

      (TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalT
INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar

      (TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
INSERT INTO Isn{dety=Amount}
      SELECTFROM ((rentalTariffPerDay \/ Delta)~;rentalTariffPerDay /\ -I[Amou

      (TO MAINTAIN  -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM
INSERT INTO Isn{dety=CarType}
      SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

INSERT INTO Isn{dety=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINTAINING -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI ren
(MAINTAINING -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rent

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
      SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer

      (TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariff
INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carT

      (TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
INSERT INTO Isn{dety=Amount}
      SELECTFROM ((rentalTariffPerDay \/ Delta)~;rentalTariffPerDay /\ -I[Amount])

      (TO MAINTAIN  -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI
INSERT INTO Isn{dety=CarType}
      SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

INSERT INTO Isn{dety=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI rentalTa
(MAINTAINING -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rentalTar

```


<-----End Derivation --

```

ON DELETE Delta FROM rentalTariffPerDay[CarType*Amount] EXECUTE    -- (ECA rule
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -( (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -( (V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod;rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -( (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -( (V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod;rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -( (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM Isn{detyp=CarType}
      SELECTFROM -( (rentalTariffPerDay /\ -Delta);(rentalTariffPerDay /\ -Delta)
      (TO MAINTAIN -I[CarType] /\ rentalTariffPerDay;I[Amount];rentalTariffPerDay[CarType*Amount])
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
(MAINTAINING -(rentalTariffPerDay~;rentalTariffPerDay) /\ I[Amount] FROM UNI rentalTariffPerDay[CarType*Amount])
(MAINTAINING -I[CarType] /\ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rentalTariffPerDay[CarType*Amount])

```

----- Derivation ----->

```

ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -( (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -( (V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod;rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -( (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(rentalTariffPerDay[CarType*Amount])
      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Amount])
      DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -( (V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod;rentalTariffPerDay[CarType*Amount])

```

```

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM Isn{dety=RentaContract}
SELECTFROM  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(rentalTariffP

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM Isn{dety=CarType}
SELECTFROM  -((rentalTariffPerDay /\ -Delta);(rentalTariffPerDay /\ -Delta)~)

(TO MAINTAIN  -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay~
(MAINTAINING  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentaCont
(MAINTAINING  -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI rentalTa
(MAINTAINING  -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rentalTar

```

<-----End Derivation --

```

ON INSERT Delta IN rcStartDate[RentalContract*Date] EXECUTE  -- (ECA rule 11)
ALL of INSERT INTO dateIntervalIsWithinMaxRentalDuration[Date*Date]
SELECTFROM  (rcStartDate \/ Delta)~;rcEndDate /\ -dateIntervalIsWithinMaxR

(TO MAINTAIN  -(rcStartDate~;rcEndDate) \/ dateIntervalIsWithinMaxRentalD
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM  (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssue

(TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIss
INSERT INTO rentalPeriod[RentalContract*Integer]
SELECTFROM  ((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);

(TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate
INSERT INTO Isn{dety=Integer}
SELECTFROM  (rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate

(TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
INSERT INTO dateIntervalCompTrigger[Date*Date]
SELECTFROM  ((rcStartDate \/ Delta)~;rcMaxRentalDuration;rcMaxRentalDurat

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcE
INSERT INTO Isn{dety=Date}
SELECTFROM  ((rcStartDate \/ Delta)~;rcStartDate /\ -I[Date]) \/ ((rcStar

(TO MAINTAIN  -(rcStartDate~;rcStartDate) \/ I[Date] FROM UNI rcStartDate
INSERT INTO Isn{dety=RentaContract}
SELECTFROM  (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rc
THEN INSERT INTO rcStartDate[RentalContract*Date]
SELECTFROM  'a'[RentalContract]*'b'[Date]

```

```

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDuration~
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Date]
        THEN INSERT INTO dateIntervalCompTrigger[Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
PICK a,b FROM dateIntervalCompTrigger~;((rcMaxRentalDuration;rcMaxRentalDuration~
THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date]
        SELECTFROM 'a'[Date]*'b'[RentalContract*Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate[RentalContract*Date]
NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate[RentalContract*Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Date]
        THEN INSERT INTO dateIntervalCompTrigger[Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
PICK a,b FROM dateIntervalCompTrigger~;('x'[Date]
        THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date]
        SELECTFROM 'x'[Date]*((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate[RentalContract*Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate[RentalContract*Date]

```



```

(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEn
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOff
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [
THEN INSERT INTO rcStartDate[RentalContr
SELECTFROM 'a' [RentalContract]*'b'

(TO MAINTAIN -(rcDroppedOffDate;rcD
PICK a,b FROM rcStartDate~;('a' [RentalCo
THEN INSERT INTO earliestDate[CompNrDays
SELECTFROM 'b' [CompNrDays]*'a' [Dat

(TO MAINTAIN -(rcDroppedOffDate;rcD
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate
NEW x:Date;
ALL of INSERT INTO rcStartDate[RentalContract
SELECTFROM 'a' [RentalContract]*'b' [Co

(TO MAINTAIN -(rcDroppedOffDate;rcDro
INSERT INTO earliestDate[CompNrDays*Da
SELECTFROM 'b' [CompNrDays]*'a' [Rental

(TO MAINTAIN -(rcDroppedOffDate;rcDro
(MAINAINING -(rcDroppedOffDate;rcDroppedOffD
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [
THEN INSERT INTO rcDroppedOffDate[Rental
SELECTFROM 'a' [RentalContract]*'b'

(TO MAINTAIN -(rcDroppedOffDate;rcD
PICK a,b FROM rcDroppedOffDate~;('a' [Ren
THEN INSERT INTO latestDate[CompNrDays*D
SELECTFROM 'b' [CompNrDays]*'a' [Dat

(TO MAINTAIN -(rcDroppedOffDate;rcD
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate
NEW x:Date;
ALL of INSERT INTO rcDroppedOffDate[RentalCon
SELECTFROM 'a' [RentalContract]*'b' [Co

(TO MAINTAIN -(rcDroppedOffDate;rcDro
INSERT INTO latestDate[CompNrDays*Date
SELECTFROM 'b' [CompNrDays]*'a' [Rental

(TO MAINTAIN -(rcDroppedOffDate;rcDro
(MAINAINING -(rcDroppedOffDate;rcDroppedOffD
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r

```

```

      (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate)
      PICK a,b FROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate;rcDroppedOffDate~)
      THEN BLOCK
      (CANNOT CHANGE V[CompNrDays*RentalContract] FROM Trigger rentalContract)
      (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate)
      (MAINTAINING -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration I[Date] FROM UNI rcStartDate:rcEndDate)
      (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIssuedCar)
      (MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
      (MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate)
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate)
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate)
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate)
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate)
      (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ rcStartDate;rcStartDate)
      (MAINTAINING -(rcStartDate~;rcStartDate) /\ I[Date] FROM UNI rcStartDate:rcEndDate)

```

```

ALL OF INSERT INTO dateIntervalIsWithinMaxRentalDuration[Date*Date]
    SELECTFROM (rcStartDate \/ Delta)~;rcEndDate /\ -dateIntervalIsWithinMaxRentalDuration[Date*Date]

(TO MAINTAIN -(rcStartDate~;rcEndDate) \/ dateIntervalIsWithinMaxRentalDuration[Date*Date]
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
    SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcKeysHandedOverQ~)

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcKeysHandedOverQ~)
INSERT INTO rentalPeriod[RentalContract*Integer]
    SELECTFROM ((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN[Integer])

(TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN[Integer])
INSERT INTO Isn{dety=Integer}
    SELECTFROM (rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN[Integer])

(TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN[Integer])
INSERT INTO dateIntervalCompTrigger[Date*Date]
    SELECTFROM ((rcStartDate \/ Delta)~;rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration~)

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration~;rcEndDate)
INSERT INTO Isn{dety=Date}
    SELECTFROM ((rcStartDate \/ Delta)~;rcStartDate /\ -I[Date]) \/ ((rcStartDate /\ -I[Date])~;rcStartDate)

(TO MAINTAIN -(rcStartDate~;rcStartDate) \/ I[Date] FROM UNI rcStartDate::RentalContract
INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration~)
    THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

```

```

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDura
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Date]
        THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMa
PICK a,b FROM dateIntervalCompTrigger~;('a'[Date]
THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMa
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[RentalContract]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRe
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRe
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEn

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rc
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Date]*((
        THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRe
PICK a,b FROM dateIntervalCompTrigger~;('x'[Date]
THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRe
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'x'[Date]*((rcMaxRentalDuration;rc

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRenta
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalD

```

```

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEnd
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((rcStartDate \/ Delta)~;rcM
        THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~
        PICK a,b FROM dateIntervalCompTrigger~;(((rcStartDate \/ Delta)~
        THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
        NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM (((rcStartDate \/ Delta)~;rcMaxRentalDuration;rcMaxRentalDuration~
        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~
        INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~;rcStartDate~
        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStar
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rcMaxRe
        THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration~
        PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDuration~
        THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
        NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration~
        INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'x'[Date]*((rcMaxRentalDuration;rcMaxRentalDuration~

```



```

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEnd
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEndDate
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate~
        THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
        THEN INSERT INTO rcStartDate[RentalContract*Date
        SELECTFROM 'a'[RentalContract]*'b'[Date

        (TO MAINTAIN  -(rcDroppedOffDate;rcDropp
        PICK a,b FROM rcStartDate~;('a'[RentalContrac
        THEN INSERT INTO earliestDate[CompNrDays*Date
        SELECTFROM 'b'[CompNrDays]*'a'[Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDropp
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date
        SELECTFROM 'a'[RentalContract]*'b'[CompNrD

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedO
        INSERT INTO earliestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[RentalContr

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedO
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStar
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
        THEN INSERT INTO rcDroppedOffDate[RentalContr
        SELECTFROM 'a'[RentalContract]*'b'[Date

        (TO MAINTAIN  -(rcDroppedOffDate;rcDropp
        PICK a,b FROM rcDroppedOffDate~;('a'[RentalCo
        THEN INSERT INTO latestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDropp
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
        ALL of INSERT INTO rcDroppedOffDate[RentalContract
        SELECTFROM 'a'[RentalContract]*'b'[CompNrD

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedO
        INSERT INTO latestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[RentalContr

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedO
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\

```

```

(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStar
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;r
PICK a,b FROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate
THEN BLOCK
(CANNOT CHANGE V[CompNrDays*RentalContract] FROM Trigger rental pe
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
(MAINAINING -(rcStartDate~;rcEndDate) \/ dateIntervalIsWithinMaxRentalDuration FROM
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINAINING -(rcStartDate~;rcStartDate) \/ I[Date] FROM UNI rcStartDate::RentalContr

```

<-----End Derivation --

```

ON DELETE Delta FROM rcStartDate[RentalContract*Date] EXECUTE -- (ECA rule 12
ALL of ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM (-((rcStartDate /\ -Delta);dateIntervalCompTrigger;rcE

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM (-rcEndDate;dateIntervalCompTrigger~;(rcStartDate~ /\

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM (-((rcStartDate /\ -Delta);dateIntervalCompTrigger;rcE

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM (-rcEndDate;dateIntervalCompTrigger~;(rcStartDate~ /\

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM (-((rcStartDate /\ -Delta);dateIntervalCompTrigger;rcE

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM (-rcEndDate;dateIntervalCompTrigger~;(rcStartDate~ /\

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -((rcStartDate /\ -Delta);dateIntervalCompTrigger;rcE

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD

```

```

(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEn
ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (-(rcStartDate /\ -Delta);dateIntervalCompTrigger) /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM rcEndDate;(-(dateIntervalCompTrigger~;(rcStartDate~ /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;(-(rcStartDate

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM (-(rcStartDate /\ -Delta);dateIntervalCompTrigger) /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcEndDate;(-(dateIntervalCompTrigger~;(rcStartDate~ /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcEndDate;rcEndDate~;(-(rcStartDate /\ -Delta);dateIn

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM (-(rcStartDate /\ -Delta);dateIntervalCompTrigger) /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcEndDate;(-(dateIntervalCompTrigger~;(rcStartDate~ /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcStartDate;rcStartDate~;(-(rcStartDate /\ -Delta);da

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM (-(rcStartDate /\ -Delta);dateIntervalCompTrigger) /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEn
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM (-(rcStartDate /\ -Delta);earliestDate~ /\ rcDropped

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM (-(V[RentalContract*CompNrDays];(earliestDate;(rcStart

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;

```

[illegible]

```

ALL of ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (-(rcStartDate /\ -Delta);dateIntervalCompTrigger;rcEndDate;rcMaxRentalDuration)
      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcMaxRentalDuration)
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (-(rcEndDate;dateIntervalCompTrigger~;(rcStartDate~ /\ -Delta);rcMaxRentalDuration)
      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcMaxRentalDuration)
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM (-(rcStartDate /\ -Delta);dateIntervalCompTrigger;rcEndDate;rcMaxRentalDuration)
      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcMaxRentalDuration)
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM (-(rcEndDate;dateIntervalCompTrigger~;(rcStartDate~ /\ -Delta);rcMaxRentalDuration)

```

```

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  (-((rcStartDate /\ -Delta);dateIntervalCompTrigger;rcEndDate;

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  (-((rcEndDate;dateIntervalCompTrigger~;(rcStartDate~ /\ -Del

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM Isn{dety=RentalContract}
SELECTFROM  -((rcStartDate /\ -Delta);dateIntervalCompTrigger;rcEndDate

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
(MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate
ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM  (-((rcStartDate /\ -Delta);dateIntervalCompTrigger) /\ rcMa

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM  rcEndDate;(-(dateIntervalCompTrigger~;(rcStartDate~ /\ -Del

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM  rcMaxRentalDuration;rcMaxRentalDuration~;(-(rcStartDate /\

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM  (-((rcStartDate /\ -Delta);dateIntervalCompTrigger) /\ rcMa

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM  rcEndDate;(-(dateIntervalCompTrigger~;(rcStartDate~ /\ -Del

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM  rcEndDate;rcEndDate~;(-(rcStartDate /\ -Delta);dateInterva

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  (-((rcStartDate /\ -Delta);dateIntervalCompTrigger) /\ rcMa

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  rcEndDate;(-(dateIntervalCompTrigger~;(rcStartDate~ /\ -Del

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM  rcStartDate;rcStartDate~;(-(rcStartDate /\ -Delta);dateInt

```

```

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  -((rcStartDate /\ -Delta);dateIntervalCompTrigger) /\ rcMax

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
(MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEndDate
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(((rcStartDate /\ -Delta);earliestDate~ /\ rcDroppedOffDa

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrDays];(earliestDate;(rcStartDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(((rcStartDate /\ -Delta);earliestDate~ /\ rcDroppedOffDa

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrDays];(earliestDate;(rcStartDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM  -(((rcStartDate /\ -Delta);earliestDate~ /\ rcDroppedOffDa

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
(MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM  -(sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch~ /

      (TO MAINTAIN  -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcP
ONE OF DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM  sessionRC;((-I[RentalContract] /\ sessionRC~;sessionRC) \/

      (TO MAINTAIN  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickup
DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM  sessionRC;((-I[RentalContract] /\ sessionRC~;sessionRC) \/

      (TO MAINTAIN  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickup
(MAINTAINING  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;r
(MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINTAINING  -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBra
(MAINTAINING  -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBra

```

<-----End Derivation --

```

ON INSERT Delta IN rcEndDate[RentalContract*Date] EXECUTE    -- (ECA rule 13)
ALL of INSERT INTO dateIntervalIsWithinMaxRentalDuration[Date*Date]
    SELECTFROM (rcStartDate~;rcEndDate /\ -dateIntervalIsWithinMaxRentalDura

    (TO MAINTAIN  -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalD
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
    SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssue

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIs
INSERT INTO rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM ((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrE

    (TO MAINTAIN  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);comp
INSERT INTO Isn{dety=Integer}
    SELECTFROM (rentalExcessPeriod~;rcDroppedOffDate;lastDate~ /\ rcEndDate

    (TO MAINTAIN  -(rentalExcessPeriod~;rcDroppedOffDate;lastDate~ /\ rcEndD
INSERT INTO dateIntervalCompTrigger[Date*Date]
    SELECTFROM (rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcEndD

    (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcE
INSERT INTO Isn{dety=Date}
    SELECTFROM ((rcEndDate /\ Delta)~;rcEndDate /\ -I[Date]) /\ ((rcEndDate \

    (TO MAINTAIN  -(rcEndDate~;rcEndDate) /\ I[Date] FROM UNI rcEndDate::Rent
INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rc
    THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRental
    THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
        THEN INSERT INTO dateIntervalCompTrigger
            SELECTFROM 'a'[Date]*'b'[Date]

            (TO MAINTAIN  -(rcMaxRentalDuration
PICK a,b FROM dateIntervalCompTrigger~;(
    THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'

        (TO MAINTAIN  -(rcMaxRentalDuration
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalD
NEW x:Date;
    ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[RentalContract]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration

```

```

INSERT INTO rcEndDate[RentalContract*D
SELECTFROM 'b'[RentalContract]*'a'[Da

      (TO MAINTAIN -(rcMaxRentalDuration;rcMa
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRent
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalD
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDa
NEW x:Date;
ALL of INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ 
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Dat
      THEN INSERT INTO dateIntervalCompTrigger[Da
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMa
PICK a,b FROM dateIntervalCompTrigger~;'x'
      THEN INSERT INTO rcEndDate[RentalContract*D
      SELECTFROM 'b'[RentalContract]*'a'[Da

      (TO MAINTAIN -(rcMaxRentalDuration;rcMa
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
NEW x:Date;
ALL of INSERT INTO dateIntervalCompTrigger[Date*
      SELECTFROM 'x'[Date]*((rcMaxRentalDurati

      (TO MAINTAIN -(rcMaxRentalDuration;rcMax
INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM ((rcMaxRentalDuration;rcMaxRe

      (TO MAINTAIN -(rcMaxRentalDuration;rcMax
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDu
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEnd
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDa
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEn
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcStartDate~;rcMaxRent
      THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMax
PICK a,b FROM dateIntervalCompTrigger~;((rcStartDate~;rcMax
      THEN INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM 'b'[RentalContract]*'a'[Date]

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMax
      (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuratio

```



```

NEW x:Date;
  ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
    SELECTFROM ((rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
        INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
          (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
            (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
              (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
                (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate
  THEN INSERT INTO rcStartDate[RentalContract*Date]
    SELECTFROM 'a'[RentalContract]*'b'[Date]

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
    PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
    THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'a'[Date]*'b'[Date]

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration)
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcMaxRentalDuration /\ rcEndDate
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate /\ rcEndDate
  THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[Date]
    THEN INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

    (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate;rcDroppedOffDate)
    PICK a,b FROM rcEndDate~;('a'[RentalContract]*'b'[Date]
    THEN INSERT INTO firstDate[CompNrExcessDays*Date]
      SELECTFROM 'b'[CompNrExcessDays]*'a'[Date]

    (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate;rcDroppedOffDate)
    (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate;rcDroppedOffDate)
    (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate;rcDroppedOffDate)
    (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate;rcDroppedOffDate)
    (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate;rcDroppedOffDate /\ rcEndDate
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate /\ rcEndDate
  THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[Date]
    THEN INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

```

```

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
INSERT INTO firstDate[CompNrExcessDays
SELECTFROM 'b' [CompNrExcessDays]*'a' [

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffD
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDat
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [
        THEN INSERT INTO rcDroppedOffDate[Rental
        SELECTFROM 'a' [RentalContract]*'b'

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        PICK a,b FROM rcDroppedOffDate~;('a' [Ren
        THEN INSERT INTO lastDate[CompNrExcessDay
        SELECTFROM 'b' [CompNrExcessDays]*'

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDat
NEW x:Date;
        ALL of INSERT INTO rcDroppedOffDate[RentalCon
        SELECTFROM 'a' [RentalContract]*'b' [Con

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        INSERT INTO lastDate[CompNrExcessDays*
        SELECTFROM 'b' [CompNrExcessDays]*'a' [

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffD
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDat
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate
        PICK a,b FROM (firstDate;rcEndDate~ /\ lastDate;rcDroppedOffDate~)
        THEN BLOCK
        (CANNOT CHANGE V[CompNrExcessDays*RentalContract] FROM Triggers
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcStartDate~;rcEndDate) \/ dateIntervalIsWithinMaxRentalDuration
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
        (MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
        (MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[R
        (MAINTAINING -(rcEndDate~;rcEndDate) \/ I[Date] FROM UNI rcEndDate::RentalContract

```

----- Derivation ----->

```

ALL of INSERT INTO dateIntervalsWithinMaxRentalDuration[Date*Date]
      SELECTFROM (rcStartDate~;rcEndDate /\ -dateIntervalsWithinMaxRentalDuration)

      (TO MAINTAIN -(rcStartDate~;rcEndDate) /\ dateIntervalsWithinMaxRentalDuration)
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
      SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar)
INSERT INTO rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM ((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessPeriod)

      (TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessPeriod)
INSERT INTO Isn{detyp=Integer}
      SELECTFROM (rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)

      (TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM (rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcMaxRentalDuration)

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcMaxRentalDuration)
INSERT INTO Isn{detyp=Date}
      SELECTFROM ((rcEndDate /\ Delta)~;rcEndDate /\ -I[Date]) /\ ((rcEndDate /\ Delta) /\ Delta)

      (TO MAINTAIN -(rcEndDate~;rcEndDate) /\ I[Date] FROM UNI rcEndDate::RentalContract
INSERT INTO Isn{detyp=RentalContract}
      SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)
      THEN INSERT INTO rcStartDate[RentalContract*Date]
            SELECTFROM 'a'[RentalContract]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)
      THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Date]
            THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
                  SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)
PICK a,b FROM dateIntervalCompTrigger~;('a'[Date]
      THEN INSERT INTO rcEndDate[RentalContract*Date]
            SELECTFROM 'b'[RentalContract]*'a'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)
NEW x:Date;
      ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
            SELECTFROM 'a'[Date]*'b'[RentalContract]*'c'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcMaxRentalDuration)

```

```

INSERT INTO rcEndDate[RentalContract*Date]
SELECTFROM 'b'[RentalContract]*'a'[Date]*'

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDurati
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
NEW x:Date;
      ALL of INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEn

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rc
      ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Date]*((
      THEN INSERT INTO dateIntervalCompTrigger[Date*Da
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
      PICK a,b FROM dateIntervalCompTrigger~;'x'[Date]
      THEN INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM 'b'[RentalContract]*'a'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
      NEW x:Date;
      ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'x'[Date]*((rcMaxRentalDuration;rc

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRenta
      INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM ((rcMaxRentalDuration;rcMaxRentalD

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRenta
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuratio
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcE
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
      ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcStartDate~;rcMaxRentalDur
      THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRenta
      PICK a,b FROM dateIntervalCompTrigger~;((rcStartDate~;rcMaxRenta
      THEN INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM 'b'[RentalContract]*'a'[Date]

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRenta
      (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\

```

```

NEW x:Date;
  ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
    SELECTFROM ((rcStartDate~;rcMaxRentalDuration;rcMaxRentalDura

    (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDu
  INSERT INTO rcEndDate[RentalContract*Date]
    SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~;rcStart

    (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDu
  (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~
  (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
  (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStar
  ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rcMaxRe
    THEN INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rc
    PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDura
    THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rc
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
  NEW x:Date;
    ALL of INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDa

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEnd
    INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'x'[Date]*((rcMaxRentalDuration;rcMaxRentalDuratio

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEnd
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\
    (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
  (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEndDate
  ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate~
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
      THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN -(rcDroppedOffDate;rcDropp
      PICK a,b FROM rcEndDate~;('a'[RentalContract]
      THEN INSERT INTO firstDate[CompNrExcessDays*D
        SELECTFROM 'b'[CompNrExcessDays]*'a'[Da

        (TO MAINTAIN -(rcDroppedOffDate;rcDropp
    (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
  NEW x:Date;
    ALL of INSERT INTO rcEndDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[CompNrE

```

```

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
INSERT INTO firstDate[CompNrExcessDays*Date]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[RentalContract]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
        THEN INSERT INTO rcDroppedOffDate[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        PICK a,b FROM rcDroppedOffDate~;'a'[RentalContract]
        THEN INSERT INTO lastDate[CompNrExcessDays*Date]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[RentalContract]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
        ALL of INSERT INTO rcDroppedOffDate[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[CompNrExcessDays]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        INSERT INTO lastDate[CompNrExcessDays*Date]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[RentalContract]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
        PICK a,b FROM (firstDate;rcEndDate~ /\ lastDate;rcDroppedOffDate~);((rc
        THEN BLOCK
        (CANNOT CHANGE V[CompNrExcessDays*RentalContract] FROM Trigger except
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Date]
        (MAINTAINING -(rcStartDate;rcEndDate) \/ dateIntervalIsWithinMaxRentalDuration FROM
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIssuedCar~
        (MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
        (MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[RentalContract]
        (MAINTAINING -(rcEndDate;rcEndDate) \/ I[Date] FROM UNI rcEndDate::RentalContract*Date

```

<-----End Derivation --

```

ON DELETE Delta FROM rcEndDate[RentalContract*Date] EXECUTE    -- (ECA rule 14)
ALL of ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
    SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -1

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
    SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~;rcSt

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcEndDate[RentalContract*Date]
    SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -1

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcEndDate[RentalContract*Date]
    SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~;rcSt

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcStartDate[RentalContract*Date]
    SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -1

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcStartDate[RentalContract*Date]
    SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~;rcSt

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM Isn{dety=RentalContract}
    SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -D

    (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEn
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
    SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;-((rcEndDate

    (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
    SELECTFROM rcStartDate;-(dateIntervalCompTrigger;(rcEndDate /\ -1

    (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
    SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\

    (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcStartDate[RentalContract*Date]
    SELECTFROM rcEndDate;rcEndDate~;-((rcEndDate /\ -Delta);dateInter

    (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcEndDate[RentalContract*Date]
    SELECTFROM rcStartDate;-(dateIntervalCompTrigger;(rcEndDate /\ -1

```

```

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
      DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcEndDate;rcEndDate~

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate;rcStartDate~
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  rcStartDate;rcStartDate~;-((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcStartDate;rcStartDate~

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate;rcStartDate~
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  rcStartDate~;-((dateIntervalCompTrigger;rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcStartDate;rcStartDate~

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate;rcStartDate~
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcStartDate;rcStartDate~

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate;rcStartDate~
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcStartDate;rcStartDate~

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate;rcStartDate~
      (MAINTAINING  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStartDate;rcStartDate~
      ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(((rcEndDate /\ -Delta);firstDate~ /\ rcDroppedOffDate;rcDroppedOffDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
      DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrExcessDays];(firstDate;rcDroppedOffDate;rcDroppedOffDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
      DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(((rcEndDate /\ -Delta);firstDate~ /\ rcDroppedOffDate;rcDroppedOffDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
      DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrExcessDays];(firstDate;rcDroppedOffDate;rcDroppedOffDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
      DELETE FROM Isn{dety=RentalContract}
      SELECTFROM  -(((rcEndDate /\ -Delta);firstDate~ /\ rcDroppedOffDate;rcDroppedOffDate~

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
      (MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
      (MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
      (MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
      (MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[RentalContract*Date]

```

----- Derivation ----->


```

ALL of ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -Delta)

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~;rcStartDate

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -Delta)

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~;rcStartDate

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -Delta)

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~;rcStartDate

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -(rcStartDate;dateIntervalCompTrigger;(rcEndDate /\ -Delta)

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;-((rcEndDate /\ -Delta)

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM rcStartDate;-(dateIntervalCompTrigger;(rcEndDate /\ -Delta)

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcMax

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcEndDate;rcEndDate~;-((rcEndDate /\ -Delta);dateIntervalC

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcStartDate;-(dateIntervalCompTrigger;(rcEndDate /\ -Delta)

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
DELETE FROM rcEndDate[RentalContract*Date]

```

```

SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcMax

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;rcStartDate~;-((rcEndDate /\ -Delta);dateInter

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;-(dateIntervalCompTrigger;(rcEndDate /\ -Delta

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcMax

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -((rcEndDate /\ -Delta);dateIntervalCompTrigger~) /\ rcMaxR

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStar
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(((rcEndDate /\ -Delta);firstDate~ /\ rcDroppedOffDate;la

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;(rcEndDate

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -(((rcEndDate /\ -Delta);firstDate~ /\ rcDroppedOffDate;la

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;(rcEndDate

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -(((rcEndDate /\ -Delta);firstDate~ /\ rcDroppedOffDate;las

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Rental

```

<-----End Derivation --

```

ON INSERT Delta IN rcCarType[RentalContract*CarType] EXECUTE -- (ECA rule 15)

```

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcPickupBranch~;(I[RentalContract]
    THEN INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'b'[Car]*'a'[Branch]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
PICK a,b FROM carAvailableAt;((rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
    THEN INSERT INTO carType[Car*CarType]
        SELECTFROM 'a'[Car]*'b'[CarType]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
NEW x:Car;
    ALL of INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'x'[Car]*((rcCarType~;(I[RentalContract] /\ -rentalHasStarted);r
        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
INSERT INTO carType[Car*CarType]
        SELECTFROM 'x'[Car]*((rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
INSERT INTO carType[Car*CarType]
        SELECTFROM rcIssuedCar~;(rcCarType /\ Delta) /\ -carType

        (TO MAINTAIN -(rcCarType~;rcIssuedCar) /\ carType~ FROM Rented car type integrity
INSERT INTO Isn{dety=CarType}
        SELECTFROM (rcCarType /\ Delta)~;rcIssuedCar;carType /\ -I[CarType]

        (TO MAINTAIN -(rcCarType~;rcIssuedCar;carType) /\ I[CarType] FROM Rented car type integrity
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
        SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

        (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
INSERT INTO Isn{dety=CarType}
        SELECTFROM ((rcCarType /\ Delta)~;rcCarType /\ -I[CarType]) /\ ((rcCarType /\ Delta)~;rcCarType /\ I[CarType])

        (TO MAINTAIN -(rcCarType~;rcCarType) /\ I[CarType] FROM UNI rcCarType::RentalContract
INSERT INTO Isn{dety=RentalContract}
        SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

INSERT INTO Isn{dety=CarType}
        SELECTFROM (Delta~;Delta /\ I[CarType]) - I[CarType]

(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType~;rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcCarType~;rcCarType /\ I[CarType] FROM UNI rcCarType::RentalContract)
(MAINTAINING -(rcCarType~;rcCarType) /\ I[CarType] FROM UNI rcCarType::RentalContract)

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcPickupBranch~;(I[RentalContract]
    THEN INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'b'[Car]*'a'[Branch]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSt
PICK a,b FROM carAvailableAt;((rcPickupBranch~;(I[RentalContract] /\ -r
    THEN INSERT INTO carType[Car*CarType]
        SELECTFROM 'a'[Car]*'b'[CarType]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSt
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarT
NEW x:Car;
    ALL of INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'x'[Car]*((rcCarType~;(I[RentalContract] /\ -rentalHasSta

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStart
INSERT INTO carType[Car*CarType]
        SELECTFROM 'x'[Car]*((rcPickupBranch~;(I[RentalContract] /\ -rentalH

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStart
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCa
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarT
INSERT INTO carType[Car*CarType]
    SELECTFROM rcIssuedCar~;(rcCarType \/ Delta) /\ -carType

(TO MAINTAIN -(rcCarType~;rcIssuedCar) \/ carType~ FROM Rented car type integ
INSERT INTO Isn{detyp=CarType}
    SELECTFROM (rcCarType \/ Delta)~;rcIssuedCar;carType /\ -I[CarType]

(TO MAINTAIN -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented car
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
    SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedC
INSERT INTO Isn{detyp=CarType}
    SELECTFROM ((rcCarType \/ Delta)~;rcCarType /\ -I[CarType]) \/ ((rcCarType \/

(TO MAINTAIN -(rcCarType~;rcCarType) \/ I[CarType] FROM UNI rcCarType::Rental
INSERT INTO Isn{detyp=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

INSERT INTO Isn{detyp=CarType}
    SELECTFROM (Delta~;Delta /\ I[CarType]) - I[CarType]

(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType) \/
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)

```

```

(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
(MAINAINING -(rcCarType~;rcCarType) /\ I[CarType] FROM UNI rcCarType::RentalContract

```

<-----End Derivation --

```

ON DELETE Delta FROM rcCarType[RentalContract*CarType] EXECUTE      -- (ECA rule 1
ALL of DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -((rcCarType /\ -Delta);carType~) /\ rcIssuedCar

      (TO MAINTAIN -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type int
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM ((-rcCarType /\ rcIssuedCar;carType) /\ (Delta /\ rcIss

      (TO MAINTAIN -(rcIssuedCar;carType) /\ rcCarType FROM Rented car
DELETE FROM carType[Car*CarType]
      SELECTFROM rcIssuedCar~;((-rcCarType /\ rcIssuedCar;carType) /\ (

      (TO MAINTAIN -(rcIssuedCar;carType) /\ rcCarType FROM Rented car
      (MAINTAINING -(rcIssuedCar;carType) /\ rcCarType FROM Rented car type int
(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)

```

----- Derivation ----->

```

ALL of DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -((rcCarType /\ -Delta);carType~) /\ rcIssuedCar

      (TO MAINTAIN -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrit
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM ((-rcCarType /\ rcIssuedCar;carType) /\ (Delta /\ rcIssuedC

      (TO MAINTAIN -(rcIssuedCar;carType) /\ rcCarType FROM Rented car type
DELETE FROM carType[Car*CarType]
      SELECTFROM rcIssuedCar~;((-rcCarType /\ rcIssuedCar;carType) /\ (Delta

      (TO MAINTAIN -(rcIssuedCar;carType) /\ rcCarType FROM Rented car type
      (MAINTAINING -(rcIssuedCar;carType) /\ rcCarType FROM Rented car type integrit
(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)

```

<-----End Derivation --

```

ON INSERT Delta IN rcPickupBranch[RentalContract*Branch] EXECUTE      -- (ECA rule
ALL of INSERT INTO rentalHasStarted[RentalContract*RentalContract]

```

```

SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
INSERT INTO rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM (rcPickupBranch;branchOf;maxRentalDuration /\ -rcMaxRentalDuration;
(TO MAINTAIN -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration;
INSERT INTO Isn{dety=MaxRentalDuration}
SELECTFROM (rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration;
(TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration;
INSERT INTO Isn{dety=Branch}
SELECTFROM ((rcPickupBranch \/ Delta)~;rcPickupBranch /\ -I[Branch]) \/
(TO MAINTAIN -(rcPickupBranch~;rcPickupBranch) \/ I[Branch] FROM UNI rcPickupBranch;
INSERT INTO Isn{dety=RentalContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcPickupBranch \/ Delta)~;
THEN INSERT INTO carAvailableAt[Car*Branch]
SELECTFROM 'b'[Car]*'a'[Branch]

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
PICK a,b FROM carAvailableAt;((rcPickupBranch \/ Delta)~;(I[RentalContract] /\ -rentalHasStarted);
THEN INSERT INTO carType[Car*CarType]
SELECTFROM 'a'[Car]*'b'[CarType]

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
NEW x:Car;
ALL of INSERT INTO carAvailableAt[Car*Branch]
SELECTFROM 'x'[Car]*(rcCarType~;(I[RentalContract] /\ -rentalHasStarted);
(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
INSERT INTO carType[Car*CarType]
SELECTFROM 'x'[Car]*((rcPickupBranch \/ Delta)~;(I[RentalContract] /\ -rentalHasStarted);
(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType;
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration;
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration;
(MAINTAINING -(rcPickupBranch~;rcPickupBranch) \/ I[Branch] FROM UNI rcPickupBranch;

```

```

ALL of INSERT INTO rentalHasStarted[RentalContract*RentalContract]
      SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

(TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedC
INSERT INTO rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (rcPickupBranch;branchOf;maxRentalDuration /\ -rcMaxRentalDuration

(TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDurat
INSERT INTO Isn{dety=MaxRentalDuration}
      SELECTFROM (rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration /\

(TO MAINTAIN  -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration
INSERT INTO Isn{dety=Branch}
      SELECTFROM ((rcPickupBranch \/ Delta)~;rcPickupBranch /\ -I[Branch]) \/ ((rcP

(TO MAINTAIN  -(rcPickupBranch~;rcPickupBranch) \/ I[Branch] FROM UNI rcPickup
INSERT INTO Isn{dety=RentalContract}
      SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcPickupBranch \/ Delta)~;(
      THEN INSERT INTO carAvailableAt[Car*Branch]
            SELECTFROM 'b'[Car]*'a'[Branch]

            (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rent
PICK a,b FROM carAvailableAt;((rcPickupBranch \/ Delta)~;(I[Rent
      THEN INSERT INTO carType[Car*CarType]
            SELECTFROM 'a'[Car]*'b'[CarType]

            (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rent
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
NEW x:Car;
      ALL of INSERT INTO carAvailableAt[Car*Branch]
            SELECTFROM 'x'[Car]*(rcCarType~;(I[RentalContract] /\ -rental

            (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalH
INSERT INTO carType[Car*CarType]
            SELECTFROM 'x'[Car]*((rcPickupBranch \/ Delta)~;(I[RentalCont

            (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalH
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarte
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarT
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType) \/
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration FROM
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration FROM
(MAINTAINING -(rcPickupBranch~;rcPickupBranch) \/ I[Branch] FROM UNI rcPickupBranch::

```

<-----End Derivation --

```

ON DELETE Delta FROM rcPickupBranch[RentalContract*Branch] EXECUTE    -- (ECA rule)
ALL of DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM -(sessionRC;(I[RentalContract] /\ (rcPickupBranch /\ -Delta));

      (TO MAINTAIN  -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      ONE OF DELETE FROM sessionRC[SESSION*RentalContract]
            SELECTFROM sessionRC;((-I[RentalContract] /\ sessionRC~;sessionRC) /\ rcPickupBranch;rcPickupBranch)

      (TO MAINTAIN  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      DELETE FROM sessionRC[SESSION*RentalContract]
            SELECTFROM sessionRC;((-I[RentalContract] /\ sessionRC~;sessionRC) /\ rcPickupBranch;rcPickupBranch)

      (TO MAINTAIN  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      (MAINTAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)

```

----- Derivation ----->

```

ALL of DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM -(sessionRC;(I[RentalContract] /\ (rcPickupBranch /\ -Delta));(rcPickupBranch /\ -Delta);

      (TO MAINTAIN  -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      ONE OF DELETE FROM sessionRC[SESSION*RentalContract]
            SELECTFROM sessionRC;((-I[RentalContract] /\ sessionRC~;sessionRC) /\ rcPickupBranch;rcPickupBranch)

      (TO MAINTAIN  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      DELETE FROM sessionRC[SESSION*RentalContract]
            SELECTFROM sessionRC;((-I[RentalContract] /\ sessionRC~;sessionRC) /\ rcPickupBranch;rcPickupBranch)

      (TO MAINTAIN  -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      (MAINTAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)
      (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)

```

<-----End Derivation --

```

ON INSERT Delta IN rcDropoffBranch[RentalContract*Branch] EXECUTE    -- (ECA rule)
ALL of INSERT INTO rentalHasStarted[RentalContract*RentalContract]
      SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssueQ;'Yes'[YesNo]);

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssueQ;'Yes'[YesNo])
      INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~ /\ rcDropoffBranch;distbranch~) /\ rcDropoffBranch;distbranch~)

      (TO MAINTAIN  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~) /\ rcDropoffBranch;distbranch~)

```



```

INSERT INTO Isn{dety=Amount}
  SELECTFROM (rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~

(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbran
INSERT INTO Isn{dety=Branch}
  SELECTFROM ((rcDropoffBranch \/ Delta)~;rcDropoffBranch /\ -I[Branch]) \

(TO MAINTAIN -(rcDropoffBranch~;rcDropoffBranch) \/ I[Branch] FROM UNI r
INSERT INTO Isn{dety=RentalContract}
  SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffBranch;dis
  THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract]
    SELECTFROM 'a'[RentalContract]*'b'[Amount]

    (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDr
  PICK a,b FROM rentalLocationPenaltyCharge~;((rcDroppedOffBr
  THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
    SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Amount]

    (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDr
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;d
NEW x:Amount;
  ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Am
    SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoff

    (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropo
  INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
    SELECTFROM ((distbranch;rcDroppedOffBranch~ /\ distbranch

    (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropo
  (MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch
  (MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;d
  (MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbran
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINTAINING -(rcDropoffBranch~;rcDropoffBranch) \/ I[Branch] FROM UNI rcDropoff

```

----- Derivation ----->

```

ALL of INSERT INTO rentalHasStarted[RentalContract*RentalContract]
  SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedC
INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
  SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d

```

```

(TO MAINTAIN  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~
INSERT INTO Isn{detyp=Amount}
SELECTFROM (rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ r

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /
INSERT INTO Isn{detyp=Branch}
SELECTFROM ((rcDropoffBranch \/ Delta)~;rcDropoffBranch /\ -I[Branch])) \/ ((r

(TO MAINTAIN  -(rcDropoffBranch~;rcDropoffBranch) \/ I[Branch] FROM UNI rcDrop
INSERT INTO Isn{detyp=RentalContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffBranch;distbran
THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amou
SELECTFROM 'a'[RentalContract]*'b'[Amount]

(TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoff
PICK a,b FROM rentalLocationPenaltyCharge~;((rcDroppedOffBranch;
THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Amount]

(TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoff
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbr
NEW x:Amount;
ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch

(TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBra
INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM ((distbranch;rcDroppedOffBranch~ /\ distbranch;rcD

(TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBra
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;dist
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbr
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINTAINING -(rcDropoffBranch~;rcDropoffBranch) \/ I[Branch] FROM UNI rcDropoffBranch

```

<-----End Derivation --

```

ON INSERT Delta IN dateIntervalIsWithinMaxRentalDuration[Date*Date] EXECUTE  -
INSERT INTO Isn{detyp=Date}
SELECTFROM (Delta;Delta~ /\ I[Date]) - I[Date] \/ (Delta~;Delta /\ I[Date]) - I

```

----- Derivation ----->

```
INSERT INTO Isn{dety=Date}
  SELECTFROM (Delta;Delta~ /\ I[Date]) - I[Date] /\ (Delta~;Delta /\ I[Date]) - I[Date]
```

<-----End Derivation --

```
ON DELETE Delta FROM dateIntervalIsWithinMaxRentalDuration[Date*Date] EXECUTE
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
  SELECTFROM rcEndDate;((-dateIntervalIsWithinMaxRentalDuration~ /\ rcEndDate)
    (TO MAINTAIN -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration
  DELETE FROM rcEndDate[RentalContract*Date]
    SELECTFROM rcStartDate;((-dateIntervalIsWithinMaxRentalDuration /\ rcStartDate)
    (TO MAINTAIN -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration
  (MAINTAINING -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration
```

----- Derivation ----->

```
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
  SELECTFROM rcEndDate;((-dateIntervalIsWithinMaxRentalDuration~ /\ rcEndDate);
    (TO MAINTAIN -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration
  DELETE FROM rcEndDate[RentalContract*Date]
    SELECTFROM rcStartDate;((-dateIntervalIsWithinMaxRentalDuration /\ rcStartDate)
    (TO MAINTAIN -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration
  (MAINTAINING -(rcStartDate~;rcEndDate) /\ dateIntervalIsWithinMaxRentalDuration FROM
```

<-----End Derivation --

```
ON INSERT Delta IN rcRenter[RentalContract*Person] EXECUTE -- (ECA rule 23)
ALL of INSERT INTO Isn{dety=Person}
  SELECTFROM ((rcRenter /\ Delta)~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ;
    (TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ;
    (TO MAINTAIN -(rcRenter~;rcRenter) /\ I[Person] FROM UNI rcRenter::RentalContract
  INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
    (MAINTAINING -(rcRenter~;rcRenter) /\ I[Person] FROM UNI rcRenter::RentalContract
```


<-----End Derivation --

```

ON INSERT Delta IN rcDriver[RentalContract*Person] EXECUTE    -- (ECA rule 25)
ALL of INSERT INTO Isn{dety=Person}
    SELECTFROM ((rcDriver \ / Delta)~;rcDriver /\ -I[Person]) \ / ((rcDriver \ /
    (TO MAINTAIN  -(rcDriver~;rcDriver) \ / (I[Person] /\ validDrivingLicense;
    (TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ;
    (TO MAINTAIN  -(rcDriver~;rcDriver) \ / I[Person] FROM UNI rcDriver::RentalContract
INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDriver /\ -(rcDriver
    THEN INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM 'a'[RentalContract]*'b'[Person]

        (TO MAINTAIN  -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
PICK a,b FROM rcDriver~;((rcDriver /\ -(rcDriver;(I[Person] /\ validDrivingLicense;
    THEN ALL of INSERT INTO Isn{dety=Person}
        SELECTFROM 'a'[Person]*'b'[Person]

        (TO MAINTAIN  -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM rcDriver~;((rcDriver /\ -(rcDriver;(I[Person] /\ validDrivingLicense;
    THEN INSERT INTO validDrivingLicense
        SELECTFROM 'a'[Person]*'b'[Person]

        (TO MAINTAIN  -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
PICK a,b FROM validDrivingLicense
    THEN INSERT INTO validDrivingLicense
        SELECTFROM 'b'[Person]*'a'[Person]

        (TO MAINTAIN  -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
(MAINTAINING -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
NEW x:DrivingLicense;
    ALL of INSERT INTO validDrivingLicense
        SELECTFROM 'a'[Person]*'b'[Person]

        (TO MAINTAIN  -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
INSERT INTO validDrivingLicense
    SELECTFROM 'b'[Person]*'a'[Person]

        (TO MAINTAIN  -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
(MAINTAINING -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
(MAINTAINING -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
(MAINTAINING -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
(MAINTAINING -rcDriver \ / rcDriver;(I[Person] /\ validDrivingLicense;
NEW x:Person;
    ALL of INSERT INTO rcDriver[RentalContract*Person]

```

```

SELECTFROM ((rcDriver /\ -(rcDriver;(I[Person] /\ validD

(TO MAINTAIN -rcDriver \/ rcDriver;(I[Person] /\ validD
INSERT INTO Isn{dety=Person}
SELECTFROM 'x'[Person]*((rcDriver /\ -(rcDriver;(I[Person

(TO MAINTAIN -rcDriver \/ rcDriver;(I[Person] /\ validD
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Per
THEN INSERT INTO validDrivingLicense[Person
SELECTFROM 'a'[Person]*'b'[DrivingLic

(TO MAINTAIN -rcDriver \/ rcDriver;(I
PICK a,b FROM validDrivingLicense~;'x'[Per
THEN INSERT INTO validDrivingLicense[Person
SELECTFROM 'b'[Person]*'a'[DrivingLic

(TO MAINTAIN -rcDriver \/ rcDriver;(I
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ v
NEW x:DrivingLicense;
INSERT INTO validDrivingLicense[Person*DrivingLi
SELECTFROM 'x'[Person]*'x'[DrivingLicense] \/ (

(TO MAINTAIN -rcDriver \/ rcDriver;(I[Person] /
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ v
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDri
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLic
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicen
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;valid
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDriver \/ Delta)~;r
THEN INSERT INTO validDrivingLicense[Person*DrivingLicense]
SELECTFROM 'a'[Person]*'b'[DrivingLicense]

(TO MAINTAIN -(rcDriver~;rcDriver) \/ (I[Person] /\ v
PICK a,b FROM validDrivingLicense~;((rcDriver \/ Delta)~;r
THEN INSERT INTO validDrivingLicense[Person*DrivingLicense]
SELECTFROM 'b'[Person]*'a'[DrivingLicense]

(TO MAINTAIN -(rcDriver~;rcDriver) \/ (I[Person] /\ v
(MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLi
NEW x:DrivingLicense;
INSERT INTO validDrivingLicense[Person*DrivingLicense]
SELECTFROM ((rcDriver \/ Delta)~;rcDriver /\ -I[Person]) \/ ((

(TO MAINTAIN -(rcDriver~;rcDriver) \/ (I[Person] /\ validDriving
(MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLi
(MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense;v
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivin
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivin
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont
(MAINTAINING -(rcDriver~;rcDriver) \/ I[Person] FROM UNI rcDriver::RentalContrac

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{detyp=Person}
    SELECTFROM ((rcDriver \/ Delta~;rcDriver /\ -I[Person]) \/ ((rcDriver \/ Del

(TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense;valid
(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rc
(TO MAINTAIN  -(rcDriver~;rcDriver) \/ I[Person] FROM UNI rcDriver::RentalCont
INSERT INTO Isn{detyp=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDriver /\ -(rcDriver;(I[P
    THEN INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM 'a'[RentalContract]*'b'[Person]

        (TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDriv
PICK a,b FROM rcDriver~;((rcDriver /\ -(rcDriver;(I[Person] /\ v
    THEN ALL of INSERT INTO Isn{detyp=Person}
        SELECTFROM 'a'[Person]*'b'[Person]

        (TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ va
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a
    THEN INSERT INTO validDrivingLicense[P
        SELECTFROM 'a'[Person]*'b'[Drivi

        (TO MAINTAIN  -rcDriver \/ rcDriv
PICK a,b FROM validDrivingLicense~;('a
    THEN INSERT INTO validDrivingLicense[P
        SELECTFROM 'b'[Person]*'a'[Drivi

        (TO MAINTAIN  -rcDriver \/ rcDriv
(MAINTAINING -rcDriver \/ rcDriver;(I[Person]
NEW x:DrivingLicense;
    ALL of INSERT INTO validDrivingLicense[Pers
        SELECTFROM 'a'[Person]*'b'[Person]*

        (TO MAINTAIN  -rcDriver \/ rcDriver;
INSERT INTO validDrivingLicense[Pers
        SELECTFROM 'b'[Person]*'a'[Person]*

        (TO MAINTAIN  -rcDriver \/ rcDriver;
(MAINTAINING -rcDriver \/ rcDriver;(I[Perso
(MAINTAINING -rcDriver \/ rcDriver;(I[Person]
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ val
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivi
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;va
NEW x:Person;
    ALL of INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM ((rcDriver /\ -(rcDriver;(I[Person] /\ validDrivin

```

```

(TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDriving
INSERT INTO Isn{dety=Person}
SELECTFROM 'x'[Person]*((rcDriver /\ -(rcDriver;(I[Person] /\

(TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDriving
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Person]*
THEN INSERT INTO validDrivingLicense[Person*Driv
SELECTFROM 'a'[Person]*'b'[DrivingLicense]

(TO MAINTAIN  -rcDriver \/ rcDriver;(I[Pers
PICK a,b FROM validDrivingLicense~;'x'[Person]*
THEN INSERT INTO validDrivingLicense[Person*Driv
SELECTFROM 'b'[Person]*'a'[DrivingLicense]

(TO MAINTAIN  -rcDriver \/ rcDriver;(I[Pers
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validD
NEW x:DrivingLicense;
INSERT INTO validDrivingLicense[Person*DrivingLicense
SELECTFROM 'x'[Person]*'x'[DrivingLicense] \/ ((rcDr

(TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ val
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validD
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingL
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;va
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDriv
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((rcDriver \/ Delta)~;rcDriv
THEN INSERT INTO validDrivingLicense[Person*DrivingLicense]
SELECTFROM 'a'[Person]*'b'[DrivingLicense]

(TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validD
PICK a,b FROM validDrivingLicense~;(((rcDriver \/ Delta)~;rcDriv
THEN INSERT INTO validDrivingLicense[Person*DrivingLicense]
SELECTFROM 'b'[Person]*'a'[DrivingLicense]

(TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validD
(MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense
NEW x:DrivingLicense;
INSERT INTO validDrivingLicense[Person*DrivingLicense]
SELECTFROM (((rcDriver \/ Delta)~;rcDriver /\ -I[Person]) \/ ((rcDri

(TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLice
(MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense
(MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense;validD
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLice
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLice
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINTAINING -(rcDriver~;rcDriver) \/ I[Person] FROM UNI rcDriver::RentalContract*Per

```


<-----End Derivation --

```

ON DELETE Delta FROM rcDriver[RentalContract*Person] EXECUTE    -- (ECA rule 26)
ALL of DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM -((rcDriver /\ -Delta);(I[Person] /\ validDrivingLicense;validDriv

      (TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDriv
ONE OF DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM (-((rcDriver /\ -Delta);(rcDriver /\ -Delta)~) /\ rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM (-((rcDriver /\ -Delta);(rcDriver~ /\ -Delta)) /\ rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -((rcDriver /\ -Delta);(rcDriver /\ -Delta)~) /\ rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
      (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLic
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]

```

----- Derivation ----->

```

ALL of DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM -((rcDriver /\ -Delta);(I[Person] /\ validDrivingLicense;validDriv

      (TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDriv
ONE OF DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM (-((rcDriver /\ -Delta);(rcDriver /\ -Delta)~) /\ rcKeysHan

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM (-((rcDriver /\ -Delta);(rcDriver~ /\ -Delta)) /\ rcKeysHan

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -((rcDriver /\ -Delta);(rcDriver /\ -Delta)~) /\ rcKeysHand

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
      (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLic
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]

```

<-----End Derivation --

```

ON INSERT Delta IN validDrivingLicense[Person*DrivingLicense] EXECUTE    -- (ECA
ALL of INSERT INTO Isn{dety=Person}
      SELECTFROM (Delta;Delta~ /\ I[Person]) - I[Person]

      INSERT INTO Isn{dety=DrivingLicense}
      SELECTFROM (Delta~;Delta /\ I[DrivingLicense]) - I[DrivingLicense]

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Person}
      SELECTFROM (Delta;Delta~ /\ I[Person]) - I[Person]

      INSERT INTO Isn{dety=DrivingLicense}
      SELECTFROM (Delta~;Delta /\ I[DrivingLicense]) - I[DrivingLicense]

```

<-----End Derivation --

```

ON DELETE Delta FROM validDrivingLicense[Person*DrivingLicense] EXECUTE    -- (E
ALL of DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM -(rcDriver;(I[Person] /\ (validDrivingLicense /\ -Delta));(val

      (TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;val
ONE OF DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcDriver;((-I[Person] /\ rcDriver~;rcDriver) \/ (-((va

      (TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingL
DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcDriver;((-I[Person] /\ rcDriver~;rcDriver) \/ (-((va

      (TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingL
      (MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense;v
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivin
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivin

```

----- Derivation ----->

```

ALL of DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM -(rcDriver;(I[Person] /\ (validDrivingLicense /\ -Delta));(validDri

      (TO MAINTAIN  -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDri
ONE OF DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcDriver;((-I[Person] /\ rcDriver~;rcDriver) \/ (-((validDr

```

```

        (TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense)
DELETE FROM rcDriver[RentalContract*Person]
        SELECTFROM rcDriver;((-I[Person] /\ rcDriver~;rcDriver) \/ (-((validDr

        (TO MAINTAIN  -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense)
        (MAINTAINING -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense;validD
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLice
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLice

```

<-----End Derivation --

```

ON INSERT Delta IN carAvailableAt[Car*Branch] EXECUTE      -- (ECA rule 29)
ALL of INSERT INTO Isn{dety=Branch}
        SELECTFROM ((carAvailableAt \/ Delta)~;carAvailableAt /\ -I[Branch]) \/

        (TO MAINTAIN  -(carAvailableAt~;carAvailableAt) \/ I[Branch] FROM UNI car.
INSERT INTO Isn{dety=Car}
        SELECTFROM (Delta;Delta~ /\ I[Car]) - I[Car]

        (MAINTAINING -(carAvailableAt~;carAvailableAt) \/ I[Branch] FROM UNI carAvailabl

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Branch}
        SELECTFROM ((carAvailableAt \/ Delta)~;carAvailableAt /\ -I[Branch]) \/ ((car

        (TO MAINTAIN  -(carAvailableAt~;carAvailableAt) \/ I[Branch] FROM UNI carAvail
INSERT INTO Isn{dety=Car}
        SELECTFROM (Delta;Delta~ /\ I[Car]) - I[Car]

        (MAINTAINING -(carAvailableAt~;carAvailableAt) \/ I[Branch] FROM UNI carAvailableAt::

```

<-----End Derivation --

```

ON DELETE Delta FROM carAvailableAt[Car*Branch] EXECUTE      -- (ECA rule 30)
ALL of ONE OF DELETE FROM rcPickupBranch[RentalContract*Branch]
        SELECTFROM (I[RentalContract] /\ -rentalHasStarted);rcCarType;(-(

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSt
DELETE FROM Isn{dety=RentalContract}
        SELECTFROM rcPickupBranch;(-((carAvailableAt /\ -Delta)~;carType)

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSt
INSERT INTO rentalHasStarted[RentalContract*RentalContract]

```

```

SELECTFROM rcPickupBranch;(-(carAvailableAt /\ -Delta)~;carType)

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSt
DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted~);rcPickupBranch

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSt
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
DELETE FROM Isn{dety=Car}
SELECTFROM -(carAvailableAt /\ -Delta);(carAvailableAt /\ -Delta)~) /\

(TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHas

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rcPickupBranch[RentalContract*Branch]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted);rcCarType;(-(carTy

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted
DELETE FROM Isn{dety=RentalContract}
SELECTFROM rcPickupBranch;(-(carAvailableAt /\ -Delta)~;carType) /\ r

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcPickupBranch;(-(carAvailableAt /\ -Delta)~;carType) /\ r

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted
DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted~);rcPickupBranch;(-

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarT
DELETE FROM Isn{dety=Car}
SELECTFROM -(carAvailableAt /\ -Delta);(carAvailableAt /\ -Delta)~) /\ -(rcI

(TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(renta
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType) \/
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHasStar

```

<-----End Derivation --

```

ON INSERT Delta IN carType[Car*CarType] EXECUTE -- (ECA rule 31)
ONE OF INSERT INTO Isn{dety=CarType}
SELECTFROM (rcCarType~;rcIssuedCar;carType /\ -I[CarType]) \/ (rcCarType

```

```

(TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented
INSERT INTO rcCarType[RentalContract*CarType]
SELECTFROM (rcIssuedCar;carType /\ -rcCarType) \/ (rcIssuedCar;Delta /\

(TO MAINTAIN  -(rcIssuedCar;carType) \/ rcCarType FROM Rented car type in
INSERT INTO rentalBasicCharge[RentalContract*Amount]
SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTari

(TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalT
INSERT INTO Isn{dety=Amount}
SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar

(TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exce

(TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;e
INSERT INTO Isn{dety=Amount}
SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcI

(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
INSERT INTO Isn{dety=CarType}
SELECTFROM ((carType \/ Delta)~;carType /\ -I[CarType]) \/ ((carType \/

(TO MAINTAIN  -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*Car
INSERT INTO Isn{dety=Car}
SELECTFROM (Delta;Delta~ /\ I[Car]) - I[Car]

INSERT INTO Isn{dety=CarType}
SELECTFROM (Delta~;Delta /\ I[CarType]) - I[CarType]

(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPeri
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPeri
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINTAINING -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
(MAINTAINING -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

```

----- Derivation ----->

```

ONE OF INSERT INTO Isn{dety=CarType}
SELECTFROM (rcCarType~;rcIssuedCar;carType /\ -I[CarType]) \/ (rcCarType~;rcI

(TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented car
INSERT INTO rcCarType[RentalContract*CarType]

```

```

SELECTFROM (rcIssuedCar;carType /\ -rcCarType) \/ (rcIssuedCar;Delta /\ -rcCarType)
(TO MAINTAIN -(rcIssuedCar;carType) \/ rcCarType FROM Rented car type integrity)
INSERT INTO rentalBasicCharge[RentalContract*Amount]
SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType) /\ rcCarType)
(TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType) /\ rcCarType)
INSERT INTO Isn{detyp=Amount}
SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType) /\ rcCarType)
(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType) /\ rcCarType)
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;carType) /\ rcCarType)
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;carType) /\ rcCarType)
INSERT INTO Isn{detyp=Amount}
SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;carType) /\ rcCarType)
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;carType) /\ rcCarType)
INSERT INTO Isn{detyp=CarType}
SELECTFROM ((carType \/ Delta)~;carType /\ -I[CarType]) \/ ((carType \/ Delta)~;carType /\ I[CarType])
(TO MAINTAIN -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
INSERT INTO Isn{detyp=Car}
SELECTFROM (Delta;Delta~ /\ I[Car]) - I[Car]

INSERT INTO Isn{detyp=CarType}
SELECTFROM (Delta~;Delta /\ I[CarType]) - I[CarType]

(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType) /\ rcCarType)
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType) /\ rcCarType)
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;carType) /\ rcCarType)
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;carType) /\ rcCarType)
(MAINTAINING -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
(MAINTAINING -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

<-----End Derivation --

ON DELETE Delta FROM carType[Car*CarType] EXECUTE -- (ECA rule 32)
ONE OF DELETE FROM rcPickupBranch[RentalContract*Branch]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted);rcCarType;(-(carType~;carType) /\ rcCarType)
(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType;(-(carType~;carType) /\ rcCarType)
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM rcPickupBranch;(-(carAvailableAt~;(carType /\ -Delta)) /\ rcCarType)

```

```

(TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted));
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcPickupBranch;(-(carAvailableAt~;(carType /\ -Delta)) /\ rcP

(TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted));
DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted~);rcPickupBranch;(-(c

(TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted));
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -(rcCarType;(carType /\ -Delta)~) /\ rcIssuedCar

(TO MAINTAIN  -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type into
DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM rcIssuedCar;(-(carType /\ -Delta) /\ rcIssuedCar~;rcCarType)

(TO MAINTAIN  -(rcCarType~;rcIssuedCar) \/ carType~ FROM Rented car type into
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rcCarType;(-(carType /\ -Delta)~ /\ rcCarType~;rcIssuedCar)

(TO MAINTAIN  -(rcCarType~;rcIssuedCar) \/ carType~ FROM Rented car type into
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta)~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM -(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta)~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta)~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM -(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta)~

(TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract*Integer]
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalExcessPeriod~

(TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract*Integer]
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalExcessPeriod~

```

```

DELETE FROM Isn{dety=RentContract}
SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]
DELETE FROM Isn{dety=Car}
SELECTFROM -((carType /\ -Delta);(carType /\ -Delta)~) /\ I[Car]

(TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalContract]
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (
(MAINTAINING -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
(MAINTAINING -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

```

----- Derivation ----->

```

ONE OF DELETE FROM rcPickupBranch[RentalContract*Branch]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted);rcCarType;(-(carType~ /\

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
DELETE FROM Isn{dety=RentContract}
SELECTFROM rcPickupBranch;(-(carAvailableAt~;(carType /\ -Delta)) /\ rcPickupBranch

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcPickupBranch;(-(carAvailableAt~;(carType /\ -Delta)) /\ rcPickupBranch

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM (I[RentalContract] /\ -rentalHasStarted~);rcPickupBranch;(-(carAvailableAt~

(TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -(rcCarType;(carType /\ -Delta)~) /\ rcIssuedCar

(TO MAINTAIN -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM rcIssuedCar;(-(carType /\ -Delta) /\ rcIssuedCar~;rcCarType)

(TO MAINTAIN -(rcCarType~;rcIssuedCar) \/ carType~ FROM Rented car type integrity)
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rcCarType;(-(carType /\ -Delta)~ /\ rcCarType~;rcIssuedCar)

(TO MAINTAIN -(rcCarType~;rcIssuedCar) \/ carType~ FROM Rented car type integrity)
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta);rcCarType

```



```

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta);r

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod~

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Delta);re

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -De

(TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalExcessP

(TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;(carType /\ -Del

(TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM Isn{detyp=Car}
SELECTFROM  -((carType /\ -Delta);(carType /\ -Delta)~) /\ I[Car]

(TO MAINTAIN  -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car*Car
(MAINTAINING  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType) \/
(MAINTAINING  -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING  -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
(MAINTAINING  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (renta
(MAINTAINING  -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
(MAINTAINING  -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

```

<-----End Derivation --

```

ON INSERT Delta IN rcKeysHandedOverQ[RentalContract*YesNo] EXECUTE  -- (ECA ru
ALL of INSERT INTO Isn{detyp=Person}
SELECTFROM  (rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];(rcKeysHandedOverQ

```

```

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
  SELECTFROM (rcKeysHandedOverQ;'Yes' [YesNo];(rcKeysHandedOverQ /\ Delta)~

(TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
INSERT INTO Isn{dety= RentalContract}
  SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

INSERT INTO Isn{dety=YesNo}
  SELECTFROM (Delta~;Delta /\ I[YesNo]) - I[YesNo]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcKeysHandedOverQ;'Yes'
  THEN INSERT INTO rcDriver[RentalContract*Person]
    SELECTFROM 'a' [RentalContract]*'b' [Person]

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
  PICK a,b FROM rcDriver~;((rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
  THEN INSERT INTO rcDriver[RentalContract*Person]
    SELECTFROM 'b' [RentalContract]*'a' [Person]

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
NEW x:Person;
  INSERT INTO rcDriver[RentalContract*Person]
    SELECTFROM ((rcKeysHandedOverQ;'Yes' [YesNo];(rcKeysHandedOverQ /\ Delta)~

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcKeysHandedOverQ;'Yes'
  THEN INSERT INTO rcRenter[RentalContract*Person]
    SELECTFROM 'a' [RentalContract]*'b' [Person]

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
  PICK a,b FROM rcRenter~;((rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
  THEN INSERT INTO rcRenter[RentalContract*Person]
    SELECTFROM 'b' [RentalContract]*'a' [Person]

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
NEW x:Person;
  INSERT INTO rcRenter[RentalContract*Person]
    SELECTFROM ((rcKeysHandedOverQ;'Yes' [YesNo];(rcKeysHandedOverQ /\ Delta)~

    (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]

```

```

(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont.
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont.
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Person}
    SELECTFROM (rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];(rcKeysHandedOverQ /\ De

    (TO MAINTAIN -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rc
    (TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rc
    INSERT INTO rentalHasStarted[RentalContract*RentalContract]
    SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];(rcKeysHandedOverQ /\ Delta)~ /\ r

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedC
    INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

    INSERT INTO Isn{dety=YesNo}
    SELECTFROM (Delta~;Delta /\ I[YesNo]) - I[YesNo]

    ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcKeysHandedOverQ;'Yes'[Yes
        THEN INSERT INTO rcDriver[RentalContract*Person]
            SELECTFROM 'a'[RentalContract]*'b'[Person]

            (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
        PICK a,b FROM rcDriver~;((rcKeysHandedOverQ;'Yes'[YesNo];(rcKeys
        THEN INSERT INTO rcDriver[RentalContract*Person]
            SELECTFROM 'b'[RentalContract]*'a'[Person]

            (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
    NEW x:Person;
    INSERT INTO rcDriver[RentalContract*Person]
    SELECTFROM ((rcKeysHandedOverQ;'Yes'[YesNo];(rcKeysHandedOverQ /\ De

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
    ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcKeysHandedOverQ;'Yes'[Yes
        THEN INSERT INTO rcRenter[RentalContract*Person]
            SELECTFROM 'a'[RentalContract]*'b'[Person]

            (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
        PICK a,b FROM rcRenter~;((rcKeysHandedOverQ;'Yes'[YesNo];(rcKeys
        THEN INSERT INTO rcRenter[RentalContract*Person]
            SELECTFROM 'b'[RentalContract]*'a'[Person]

```

```

        (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
NEW x:Person;
        INSERT INTO rcRenter[RentalContract*Person]
        SELECTFROM ((rcKeysHandedOverQ;'Yes'[YesNo];(rcKeysHandedOverQ /\ De

        (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\
        (MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
        (MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss

```

<-----End Derivation --

```

ON INSERT Delta IN rcIssuedCar[RentalContract*Car] EXECUTE      -- (ECA rule 35)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcIssuedCar /\ -(rcCarType;car
        THEN INSERT INTO rcCarType[RentalContract*CarType]
        SELECTFROM 'a'[RentalContract]*'b'[CarType]

        (TO MAINTAIN  -rcIssuedCar /\ rcCarType;carType~ FROM Rented
        PICK a,b FROM rcCarType~;((rcIssuedCar /\ -(rcCarType;carType~)) /\
        THEN INSERT INTO carType[Car*CarType]
        SELECTFROM 'b'[Car]*'a'[CarType]

        (TO MAINTAIN  -rcIssuedCar /\ rcCarType;carType~ FROM Rented
(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type inte
NEW x:CarType;
        ALL of INSERT INTO rcCarType[RentalContract*CarType]
        SELECTFROM ((rcIssuedCar /\ -(rcCarType;carType~)) /\ (Delta /\

        (TO MAINTAIN  -rcIssuedCar /\ rcCarType;carType~ FROM Rented car
        INSERT INTO carType[Car*CarType]
        SELECTFROM ((rcIssuedCar~ /\ -(carType;rcCarType~)) /\ (Delta~

        (TO MAINTAIN  -rcIssuedCar /\ rcCarType;carType~ FROM Rented car
        (MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type in
(MAINAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type inte
        INSERT INTO carType[Car*CarType]
        SELECTFROM (rcIssuedCar~;rcCarType /\ -carType) /\ (Delta~;rcCarType /\

        (TO MAINTAIN  -(rcCarType~;rcIssuedCar) /\ carType~ FROM Rented car type
        INSERT INTO Isn{dety=CarType}
        SELECTFROM (rcCarType~;rcIssuedCar;carType /\ -I[CarType]) /\ (rcCarType

        (TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) /\ I[CarType] FROM Rented

```

```

INSERT INTO rcCarType[RentalContract*CarType]
  SELECTFROM (rcIssuedCar;carType /\ -rcCarType) \/ (Delta;carType /\ -rcC

(TO MAINTAIN -(rcIssuedCar;carType) \/ rcCarType FROM Rented car type in
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
  SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssue

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIs
INSERT INTO Isn{dety=Car}
  SELECTFROM (rcIssuedCar \/ Delta)~;rcDroppedOffCar /\ -I[Car]

(TO MAINTAIN -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off
INSERT INTO rentalBasicCharge[RentalContract*Amount]
  SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTari

(TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalT
INSERT INTO Isn{dety=Amount}
  SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
  SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exce

(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;e
INSERT INTO Isn{dety=Amount}
  SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcI

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcIssuedCar;(rcIssuedCar \/ D
  THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
    THEN INSERT INTO rentalPeriod[RentalContract*Amount]
      SELECTFROM 'a'[RentalContract]*'b'

    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rcCarType FROM Rented car type in
    PICK a,b FROM rentalPeriod~;('a'[RentalContract]*'b'[CompTariffedCharge]
    THEN INSERT INTO ctcNrOfDays[CompTariffedCharge]
      SELECTFROM 'b'[CompTariffedCharge]

    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rcCarType FROM Rented car type in
    (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rcCarType FROM Rented car type in
    NEW x:Integer;
    ALL of INSERT INTO rentalPeriod[RentalContract*Amount]
      SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]

    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rcCarType FROM Rented car type in
    INSERT INTO ctcNrOfDays[CompTariffedCharge]
      SELECTFROM 'b'[CompTariffedCharge]*'a'

    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rcCarType FROM Rented car type in
    (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rcCarType FROM Rented car type in

```

```

(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
    THEN INSERT INTO rcIssuedCar[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'

```

```

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
    THEN INSERT INTO rcIssuedCar[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'

```

```

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
    THEN INSERT INTO rcIssuedCar[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'

```

```

PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
    THEN INSERT INTO rcIssuedCar[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'

```

```

(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
NEW x:Amo
ALL of

```

```

(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
NEW x:CarType;
ALL of INSERT INTO rcIssuedCar[RentalContract]
    SELECTFROM 'a'[RentalContract]*'b'

```

```

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPerio
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
    THEN INSERT INTO rcIssuedCar[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'

```

```

PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
    THEN INSERT INTO rcIssuedCar[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'

```

```

(MAINAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

(TO
(MAINAINI
(MAINAINING
(MAINAINING -(rcIss
(MAINAINING -(rcIssuedCar
(MAINAINING -(rcIssuedCar;r
(MAINAINING -(rcIssuedCar;rcIssued
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rent
NEW x:Car;
ALL of INSERT INTO rcIssuedCar[RentalContract
SELECTFROM 'a'[RentalContract]*'b'[Con

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK
THEN INSERT INTO carType
SELECTFROM 'a'[Car

(TO MAINTAIN -(rcI
PICK a,b FROM carType~;(
THEN ONE OF ONE NONEMPTY
THEN

PICK
THEN

(MAINAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

```



```

INSERT INTO Isn{dety=Car}
  SELECTFROM (Delta~;Delta /\ I[Car]) - I[Car]

(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
(MAINAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Renta
(MAINAINING -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar::RentalC

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcIssuedCar /\ -(rcCarType;carType
  THEN INSERT INTO rcCarType[RentalContract*CarType]
    SELECTFROM 'a'[RentalContract]*'b'[CarType]

    (TO MAINTAIN -rcIssuedCar \/ rcCarType;carType~ FROM Rented car t
  PICK a,b FROM rcCarType~;((rcIssuedCar /\ -(rcCarType;carType~)) \/ (De
  THEN INSERT INTO carType[Car*CarType]
    SELECTFROM 'b'[Car]*'a'[CarType]

    (TO MAINTAIN -rcIssuedCar \/ rcCarType;carType~ FROM Rented car t
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity
NEW x:CarType;
  ALL of INSERT INTO rcCarType[RentalContract*CarType]
    SELECTFROM ((rcIssuedCar /\ -(rcCarType;carType~)) \/ (Delta /\ -(rc

    (TO MAINTAIN -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type
  INSERT INTO carType[Car*CarType]
    SELECTFROM ((rcIssuedCar~ /\ -(carType;rcCarType~)) \/ (Delta~ /\ -(

    (TO MAINTAIN -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type
    (MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integri
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity
  INSERT INTO carType[Car*CarType]
    SELECTFROM (rcIssuedCar~;rcCarType /\ -carType) \/ (Delta~;rcCarType /\ -carT

  (TO MAINTAIN -(rcCarType~;rcIssuedCar) \/ carType~ FROM Rented car type integ
  INSERT INTO Isn{dety=CarType}
    SELECTFROM (rcCarType~;rcIssuedCar;carType /\ -I[CarType]) \/ (rcCarType~;Del

```

```

(TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented car
INSERT INTO rcCarType[RentalContract*CarType]
SELECTFROM (rcIssuedCar;carType /\ -rcCarType) \/ (Delta;carType /\ -rcCarType)

(TO MAINTAIN  -(rcIssuedCar;carType) \/ rcCarType FROM Rented car type integrity
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;carType)

(TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;carType)
INSERT INTO Isn{detyp=Car}
SELECTFROM (rcIssuedCar \/ Delta)~;rcDroppedOffCar /\ -I[Car]

(TO MAINTAIN  -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off car type integrity
INSERT INTO rentalBasicCharge[RentalContract*Amount]
SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay) /\ rcDroppedOffCar)

(TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay) /\ rcDroppedOffCar)
INSERT INTO Isn{detyp=Amount}
SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay) /\ rcDroppedOffCar)

(TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay) /\ rcDroppedOffCar)
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay) /\ rcDroppedOffCar)

(TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay) /\ rcDroppedOffCar)
INSERT INTO Isn{detyp=Amount}
SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay) /\ rcDroppedOffCar)

(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay) /\ rcDroppedOffCar)
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcIssuedCar;rcIssuedCar~ /\ Delta) /\ rcDroppedOffCar)
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Amount] /\ rcDroppedOffCar)
THEN INSERT INTO rentalPeriod[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[Integer]

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ Delta) /\ rcDroppedOffCar)
PICK a,b FROM rentalPeriod~;('a'[RentalContract*Amount] /\ rcDroppedOffCar)
THEN INSERT INTO ctcNrOfDays[CompTariffedCharge*Amount]
SELECTFROM 'b'[CompTariffedCharge]*'a'[Integer]

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ Delta) /\ rcDroppedOffCar)
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod) /\ rcDroppedOffCar)
NEW x:Integer;
ALL of INSERT INTO rentalPeriod[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]

(TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ Delta) /\ rcDroppedOffCar)
INSERT INTO ctcNrOfDays[CompTariffedCharge*Amount]
SELECTFROM 'b'[CompTariffedCharge]*'a'[RentalContract*Amount]

```

```

        (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\
        (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalP
        (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
        (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;ren
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
        THEN INSERT INTO rcIssuedCar[RentalContract*C
        SELECTFROM 'a'[RentalContract]*'b'[Car]

        (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~
        PICK a,b FROM rcIssuedCar~;('a'[RentalContract*
        THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK
        THEN INSERT INTO carType[C
        SELECTFROM 'a'[Car]*

        (TO MAINTAIN  -(rcIss
        PICK a,b FROM carType~;('a
        THEN ONE OF ONE NONEMPTY A
        THEN IN
        S

        (T
        PICK a,
        THEN IN
        S

        (T
        (MAINTAINING -
        NEW x:Amount;
        ALL of INSERT
        SELE

        (TO M
        INSERT
        SELE

        (TO M
        (MAINTAINING
        (MAINTAINING -
        (MAINTAINING -(rcIssu
        (MAINTAINING -(rcIssuedCar;rcIssu
        NEW x:CarType;
        ALL of INSERT INTO carType[Car*
        SELECTFROM 'a'[Car]*'b'

        (TO MAINTAIN  -(rcIssued
        ONE OF ONE NONEMPTY ALTE
        THEN INSERT
        SELE

        (TO M

```

```

PICK a,b F
THEN INSE
SELE

(TO M
(MAINAINING -(rc
NEW x:Amount;
ALL of INSERT I
SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINAINING -(
(MAINAINING -(rc
(MAINAINING -(rcIssuedC
(MAINAINING -(rcIssuedCar;rcIs
(MAINAINING -(rcIssuedCar;rcIssu
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
NEW x:Car;
ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
SELECTFROM 'a'[RentalContract]*'b'[CompTar

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b
THEN INSERT INTO carType[Car*
SELECTFROM 'a'[Car]*'b'

(TO MAINTAIN -(rcIssued
PICK a,b FROM carType~;'x'[C
THEN ONE OF ONE NONEMPTY ALTE
THEN INSE
SELE

(TO M
PICK a,b F
THEN INSE
SELE

(TO M
(MAINAINING -(rc
NEW x:Amount;
ALL of INSERT I
SELECTF

(TO MAIN
INSERT I

```

```

SELECTF
      (TO MAIN
      (MAINTAINING -(rc
      (MAINTAINING -(rc
      (MAINTAINING -(rcIssuedC
      (MAINTAINING -(rcIssuedCar;rcIssuedC
NEW x:CarType;
      ALL of INSERT INTO carType[Car*Car
      SELECTFROM 'x'[Car]*'a'[Re

      (TO MAINTAIN -(rcIssuedCar
      ONE OF ONE NONEMPTY ALTERNA
      THEN INSERT I
      SELECTF

      (TO MAIN
      PICK a,b FROM
      THEN INSERT I
      SELECTF

      (TO MAIN
      (MAINTAINING -(rcIss
      NEW x:Amount;
      ALL of INSERT INTO
      SELECTFROM

      (TO MAINTAI
      INSERT INTO
      SELECTFROM

      (TO MAINTAI
      (MAINTAINING -(rcI
      (MAINTAINING -(rcIss
      (MAINTAINING -(rcIssuedCar;
      (MAINTAINING -(rcIssuedCar;rcIssue
      (MAINTAINING -(rcIssuedCar;rcIssuedC
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalP
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;ren
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeri
      PICK a,b FROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariff
      THEN BLOCK
      (CANNOT CHANGE V[CompTariffedCharge*RentalContract] FROM Trigger r
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Ren
      INSERT INTO Isn{dety=Car}
      SELECTFROM ((rcIssuedCar \/ Delta)~;rcIssuedCar /\ -I[Car]) \/ ((rcIssuedCar

      (TO MAINTAIN -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar::Rent

```

```

INSERT INTO Isn{detypr=RentalContract}
  SELECTFROM (Delta~;Delta~ /\ I[RentalContract]) - I[RentalContract]

INSERT INTO Isn{detypr=Car}
  SELECTFROM (Delta~;Delta /\ I[Car]) - I[Car]

(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
(MAINAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity)
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
(MAINAINING -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar::RentalContra

<-----End Derivation --

ON DELETE Delta FROM rcIssuedCar[RentalContract*Car] EXECUTE -- (ECA rule 36)
ALL of DELETE FROM Isn{detypr=Car}
  SELECTFROM -(carAvailableAt;carAvailableAt~) /\ -((rcIssuedCar /\ -Delta

  (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;
  DELETE FROM rcDroppedOffCar[RentalContract*Car]
  SELECTFROM (-rcIssuedCar /\ rcDroppedOffCar) \/ (Delta /\ rcDroppedOffCar

  (TO MAINTAIN -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type i
  ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
  SELECTFROM (-((rentalPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delt

  (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
  DELETE FROM rcIssuedCar[RentalContract*Car]
  SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;r

  (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
  DELETE FROM rentalPeriod[RentalContract*Integer]
  SELECTFROM (-((rentalPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delt

  (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
  DELETE FROM rentalPeriod[RentalContract*Integer]
  SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;r

  (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
  DELETE FROM Isn{detypr=RentalContract}

```

```

SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delta)~;
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\
    (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[Rental
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;r
    (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[Rental
DELETE FROM Isn{dety=RentContract}
    SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\
    (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[Rental
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
(MAINAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHa
(MAINAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Rental
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (

```

----- Derivation ----->

```

ALL of DELETE FROM Isn{dety=Car}
    SELECTFROM -(carAvailableAt;carAvailableAt~) /\ -((rcIssuedCar /\ -Delta)~;(r
    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(renta
DELETE FROM rcDroppedOffCar[RentalContract*Car]
    SELECTFROM -(rcIssuedCar /\ rcDroppedOffCar) \/ (Delta /\ rcDroppedOffCar)
    (TO MAINTAIN -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integr
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
    SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delta);ca
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~
DELETE FROM rcIssuedCar[RentalContract*Car]
    SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rental
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~
DELETE FROM rentalPeriod[RentalContract*Integer]
    SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delta);ca
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~
DELETE FROM rentalPeriod[RentalContract*Integer]
    SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rental
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~

```

```

DELETE FROM Isn{dety=rentalContract}
SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delta);car

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Ren
ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Del

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContr
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rental

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContr
DELETE FROM Isn{dety=rentalContract}
      SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ (rcIssuedCar /\ -Delt

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContr
      (MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
(MAINAINING -I[Car] \ carAvailableAt;carAvailableAt~ \ rcIssuedCar~;(rentalHasStar
(MAINAINING -rcDroppedOffCar \ rcIssuedCar FROM Dropped-off car type integrity)
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \ (renta

<-----End Derivation --

```

```

ON INSERT Delta IN rentalHasStarted[RentalContract*RentalContract] EXECUTE --
ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
      SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBra

      (TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOff
INSERT INTO Isn{dety=rentalContract}
      SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract] \ (D

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcPickupBranch~;(I[Rent
      THEN INSERT INTO carAvailableAt[Car*Branch]
      SELECTFROM 'b'[Car]*'a'[Branch]

      (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\
PICK a,b FROM carAvailableAt;(rcPickupBranch~;(I[RentalCont
      THEN INSERT INTO carType[Car*CarType]
      SELECTFROM 'a'[Car]*'b'[CarType]

      (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\
(MAINAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStar
NEW x:Car;
      ALL of INSERT INTO carAvailableAt[Car*Branch]
      SELECTFROM 'x'[Car]*(rcCarType~;(I[RentalContract] /\ -r

```



```

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
INSERT INTO carType[Car*CarType]
        SELECTFROM 'x'[Car]*(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop

```

----- Derivation ----->

```

ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
        SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
INSERT INTO Isn{dety=RentalContract}
        SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract] \/ (Delta~

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        THEN INSERT INTO carAvailableAt[Car*Branch]
                SELECTFROM 'b'[Car]*'a'[Branch]

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        PICK a,b FROM carAvailableAt;(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        THEN INSERT INTO carType[Car*CarType]
                SELECTFROM 'a'[Car]*'b'[CarType]

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
NEW x:Car;
        ALL of INSERT INTO carAvailableAt[Car*Branch]
                SELECTFROM 'x'[Car]*(rcCarType~;(I[RentalContract] /\ -rentalHasStarted)

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        INSERT INTO carType[Car*CarType]
                SELECTFROM 'x'[Car]*(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)

        (TO MAINTAIN  -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType) \/
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalHasStarted[RentalContract*RentalContract] EXECUTE
ALL of DELETE FROM Isn{dety=Car}
      SELECTFROM -(carAvailableAt;carAvailableAt~) /\ -(rcIssuedCar~;(rentalHasStarted[RentalContract*CarType]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -I[Car] /\ carAvailableAt;carAvailableAt~ /\ rcIssuedCar~;(rentalHasStarted[RentalContract*CarType]
      ONE OF DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcDropoffBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcDropoffBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
      DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo]);

      (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~

```

```

DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
DELETE FROM Isn{dety= RentalContract}
SELECTFROM (-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];r

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIss
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHa
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;

```

----- Derivation ----->

```

ALL of DELETE FROM Isn{dety=Car}
SELECTFROM -(carAvailableAt;carAvailableAt~) /\ -(rcIssuedCar~;(rentalHasStar

(TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(renta
ONE OF DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

```

```

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM ((-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKey

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM ((-rentalHasStarted~ /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKe

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM (-rentalHasStarted /\ rcKeysHandedOverQ;'Yes'[YesNo];rcKeys

      (TO MAINTAIN  -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rc
      (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCa
      (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHasStar
      (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss

```

<-----End Derivation --

```

ON INSERT Delta IN rcDroppedOffCar[RentalContract*Car] EXECUTE  -- (ECA rule 3
ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
      SELECTFROM (rcDroppedOffCar /\ -rcIssuedCar) \/ (Delta /\ -rcIssuedCar)

```

```

(TO MAINTAIN  -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type i
INSERT INTO Isn{dety=Car}
  SELECTFROM (rcIssuedCar~;rcDroppedOffCar /\ -I[Car]) \/ (rcIssuedCar~;De

(TO MAINTAIN  -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off
(TO MAINTAIN  -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDr
INSERT INTO rentalHasEnded[RentalContract*RentalContract]
  SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBra

(TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOff
INSERT INTO Isn{dety=RentalContract}
  SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffCar /\ -(
  THEN ALL of INSERT INTO Isn{dety=RentalContract}
    SELECTFROM 'a'[RentalContract]*'b'[RentalContr

    (TO MAINTAIN  -rcDroppedOffCar \/ (I[RentalCont
    ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM
      THEN INSERT INTO rcDroppedOffBranch
        SELECTFROM 'a'[RentalContra

        (TO MAINTAIN  -rcDroppedOffC
        PICK a,b FROM rcDroppedOffBranch~
        THEN INSERT INTO rcDroppedOffBranch
          SELECTFROM 'b'[RentalContra

          (TO MAINTAIN  -rcDroppedOffC
          (MAINTAINING -rcDroppedOffCar \/ (I[Rent
          NEW x:Branch;
          ALL of INSERT INTO rcDroppedOffBranch[
            SELECTFROM 'a'[RentalContract]

            (TO MAINTAIN  -rcDroppedOffCar
            INSERT INTO rcDroppedOffBranch[
              SELECTFROM 'b'[RentalContract]

              (TO MAINTAIN  -rcDroppedOffCar
              (MAINTAINING -rcDroppedOffCar \/ (I[Re
              (MAINTAINING -rcDroppedOffCar \/ (I[Rent
              (MAINTAINING -rcDroppedOffCar \/ (I[RentalContr
              ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM
                THEN INSERT INTO rcDroppedOffDate
                  SELECTFROM 'a'[RentalContra

                  (TO MAINTAIN  -rcDroppedOffC
                  PICK a,b FROM rcDroppedOffDate~;(
                  THEN INSERT INTO rcDroppedOffDate
                    SELECTFROM 'b'[RentalContra

```

```

                                (TO MAINTAIN -rcDroppedOffCar
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract]
NEW x:Date;
    ALL of INSERT INTO rcDroppedOffDate[RentalContract]
        SELECTFROM 'a'[RentalContract]

                                (TO MAINTAIN -rcDroppedOffCar
INSERT INTO rcDroppedOffDate[RentalContract]
        SELECTFROM 'b'[RentalContract]

                                (TO MAINTAIN -rcDroppedOffCar
                                (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract]
                                (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract]
                                (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract]
                                (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\
PICK a,b FROM (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
THEN INSERT INTO rcDroppedOffCar[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[Car]

                                (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
NEW x:RentalContract;
    ALL of INSERT INTO Isn{dety=RentalContract}
        SELECTFROM ((rcDroppedOffCar /\ -((I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate

                                (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffBranch;rcDroppedOffDate
        THEN INSERT INTO rcDroppedOffBranch[RentalContract*Branch]
        SELECTFROM 'a'[RentalContract]*'b'[Branch]

                                (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
PICK a,b FROM rcDroppedOffBranch~;((rcDroppedOffBranch;rcDroppedOffDate
        THEN INSERT INTO rcDroppedOffBranch[RentalContract*Branch]
        SELECTFROM 'b'[RentalContract]*'a'[Branch]

                                (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
NEW x:Branch;
    INSERT INTO rcDroppedOffBranch[RentalContract*Branch]
        SELECTFROM ((rcDroppedOffCar /\ -((I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate

                                (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
                                (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
                                (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffBranch;rcDroppedOffDate
        THEN INSERT INTO rcDroppedOffDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

                                (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
PICK a,b FROM rcDroppedOffDate~;((rcDroppedOffBranch;rcDroppedOffDate

```

```

        THEN INSERT INTO rcDroppedOffDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffDate)
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffDate)
        NEW x:Date;
        INSERT INTO rcDroppedOffDate[RentalContract*Date]
        SELECTFROM ((rcDroppedOffCar /\ -(I[RentalContract] /\ rcDroppedOffDate))

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar)
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar)
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar) /\ rcDroppedOffDate
        INSERT INTO rcDroppedOffCar[RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*((rcDroppedOffCar /\ -(I[RentalContract] /\ rcDroppedOffCar)

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar) /\ rcDroppedOffDate
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar) /\ rcDroppedOffDate
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar) /\ rcDroppedOffDate
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffCar) /\ rcDroppedOffDate
        (MAINTAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity
        (MAINTAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDroppedOffDate
        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffDate
        (MAINTAINING -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDroppedOffDate

```

----- Derivation ----->

```

ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
    SELECTFROM (rcDroppedOffCar /\ -rcIssuedCar) \/ (Delta /\ -rcIssuedCar)

(TO MAINTAIN -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity
INSERT INTO Isn{detyp=Car}
    SELECTFROM (rcIssuedCar~;rcDroppedOffCar /\ -I[Car]) \/ (rcIssuedCar~;Delta /\ -rcIssuedCar)

(TO MAINTAIN -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off car type integrity
(TO MAINTAIN -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDroppedOffDate
INSERT INTO rentalHasEnded[RentalContract*RentalContract]
    SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDroppedOffDate

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDroppedOffDate
INSERT INTO Isn{detyp=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffCar /\ -(I[RentalContract] /\ rcDroppedOffDate))
    THEN ALL of INSERT INTO Isn{detyp=RentalContract}
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffDate)

```

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a
      THEN INSERT INTO rcDroppedOffBranch[Re
        SELECTFROM 'a'[RentalContract]*'

      (TO MAINTAIN -rcDroppedOffCar \/
PICK a,b FROM rcDroppedOffBranch~;('a'
      THEN INSERT INTO rcDroppedOffBranch[Re
        SELECTFROM 'b'[RentalContract]*'

      (TO MAINTAIN -rcDroppedOffCar \/
(MAINTAINING -rcDroppedOffCar \/ (I[RentalCon
NEW x:Branch;
      ALL of INSERT INTO rcDroppedOffBranch[Renta
        SELECTFROM 'a'[RentalContract]*'b'[

      (TO MAINTAIN -rcDroppedOffCar \/ (I
      INSERT INTO rcDroppedOffBranch[Renta
        SELECTFROM 'b'[RentalContract]*'a'[

      (TO MAINTAIN -rcDroppedOffCar \/ (I
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalC
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalCon
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract]
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a
      THEN INSERT INTO rcDroppedOffDate[Renta
        SELECTFROM 'a'[RentalContract]*'

      (TO MAINTAIN -rcDroppedOffCar \/
PICK a,b FROM rcDroppedOffDate~;('a'[R
      THEN INSERT INTO rcDroppedOffDate[Renta
        SELECTFROM 'b'[RentalContract]*'

      (TO MAINTAIN -rcDroppedOffCar \/
(MAINTAINING -rcDroppedOffCar \/ (I[RentalCon
NEW x:Date;
      ALL of INSERT INTO rcDroppedOffDate[RentalC
        SELECTFROM 'a'[RentalContract]*'b'[

      (TO MAINTAIN -rcDroppedOffCar \/ (I
      INSERT INTO rcDroppedOffDate[RentalC
        SELECTFROM 'b'[RentalContract]*'a'[

      (TO MAINTAIN -rcDroppedOffCar \/ (I
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalC
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalCon
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract]
      (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDr
PICK a,b FROM (I[RentalContract] /\ rcDroppedOffBranch;rcDropped
THEN INSERT INTO rcDroppedOffCar[RentalContract*Car]
      SELECTFROM 'a'[RentalContract]*'b'[Car]

```



```

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcD
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBr
NEW x:RentalContract;
    ALL of INSERT INTO Isn{dety=RentalContract}
        SELECTFROM ((rcDroppedOffCar /\ -(I[RentalContract] /\ rcDro

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDrop
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((rcDroppedO
        THEN INSERT INTO rcDroppedOffBranch[RentalContra
            SELECTFROM 'a'[RentalContract]*'b'[Branch]

            (TO MAINTAIN -rcDroppedOffCar \/ (I[Rental
            PICK a,b FROM rcDroppedOffBranch~;(((rcDroppedOf
            THEN INSERT INTO rcDroppedOffBranch[RentalContra
                SELECTFROM 'b'[RentalContract]*'a'[Branch]

                (TO MAINTAIN -rcDroppedOffCar \/ (I[Rental
                (MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\
NEW x:Branch;
        INSERT INTO rcDroppedOffBranch[RentalContract*Branch]
            SELECTFROM ((rcDroppedOffCar /\ -(I[RentalContract]

            (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract]
            (MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDropp
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((rcDroppedO
        THEN INSERT INTO rcDroppedOffDate[RentalContract
            SELECTFROM 'a'[RentalContract]*'b'[Date]

            (TO MAINTAIN -rcDroppedOffCar \/ (I[Rental
            PICK a,b FROM rcDroppedOffDate~;(((rcDroppedOffC
            THEN INSERT INTO rcDroppedOffDate[RentalContract
                SELECTFROM 'b'[RentalContract]*'a'[Date]

                (TO MAINTAIN -rcDroppedOffCar \/ (I[Rental
                (MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\
NEW x:Date;
        INSERT INTO rcDroppedOffDate[RentalContract*Date]
            SELECTFROM ((rcDroppedOffCar /\ -(I[RentalContract]

            (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract]
            (MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDropp
INSERT INTO rcDroppedOffCar[RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*((rcDroppedOffCar /\ -(I[Ren

        (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDrop
        (MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBr
(MAINAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBr

```

```

        (MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDr
(MAINTAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity)
(MAINTAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity)
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
(MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOf
(MAINTAINING -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDroppedOffCar::

```

<-----End Derivation --

```

ON DELETE Delta FROM rcDroppedOffCar[RentalContract*Car] EXECUTE    -- (ECA rule
DELETE FROM rcDroppedOffCar[RentalContract*Car]
    SELECTFROM -(I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffBranch~ /\ rc

(TO MAINTAIN  -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDrop

```

----- Derivation ----->

```

DELETE FROM rcDroppedOffCar[RentalContract*Car]
    SELECTFROM -(I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffBranch~ /\ rcDropp

(TO MAINTAIN  -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedO

```

<-----End Derivation --

```

ON INSERT Delta IN rcDroppedOffDate[RentalContract*Date] EXECUTE    -- (ECA rule
ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
    SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBra

(TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOfff
INSERT INTO rentalPeriod[RentalContract*Integer]
    SELECTFROM ((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);

(TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate
INSERT INTO Isn{dety=Integer}
    SELECTFROM (rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate

(TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOfffD
(TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
INSERT INTO rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM ((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrE

(TO MAINTAIN  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);comp
INSERT INTO Isn{dety=Date}
    SELECTFROM ((rcDroppedOffDate \/ Delta)~;rcDroppedOffDate /\ -I[Date]) \

```

```

(TO MAINTAIN  -(rcDroppedOffDate~;rcDroppedOffDate) /\ I[Date] FROM UNI r
INSERT INTO Isn{dety=RentContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

```

```

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate)
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rcStartDate[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
PICK a,b FROM rcStartDate~;('a'[RentalContract]
THEN INSERT INTO earliestDate[CompNrDays]
SELECTFROM 'b'[CompNrDays]*'a'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate)
NEW x:Date;
ALL of INSERT INTO rcStartDate[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
INSERT INTO earliestDate[CompNrDays*Date]
SELECTFROM 'b'[CompNrDays]*'a'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rcDroppedOffDate[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
PICK a,b FROM rcDroppedOffDate~;('a'[RentalContract]
THEN INSERT INTO latestDate[CompNrDays*Date]
SELECTFROM 'b'[CompNrDays]*'a'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate)
NEW x:Date;
ALL of INSERT INTO rcDroppedOffDate[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
INSERT INTO latestDate[CompNrDays*Date]
SELECTFROM 'b'[CompNrDays]*'a'[RentalContract]

```

```

(TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate)
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate)

```

```

        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        PICK a,b FROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate;rcDroppedOffDate~
        THEN BLOCK
        (CANNOT CHANGE V[CompNrDays*RentalContract] FROM Trigger rent
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[RentalContract])
        THEN INSERT INTO rcEndDate[RentalContract]*'b'[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        PICK a,b FROM rcEndDate~;'a'[RentalContract]*'b'[RentalContract]
        THEN INSERT INTO firstDate[CompNrExcessDays]*'a'[CompNrExcessDays]*'b'[CompNrExcessDays]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[CompNrExcessDays]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        NEW x:Date;
        ALL of INSERT INTO rcEndDate[RentalContract]*'b'[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        INSERT INTO firstDate[CompNrExcessDays]*'a'[CompNrExcessDays]*'b'[CompNrExcessDays]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[CompNrExcessDays]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[RentalContract])
        THEN INSERT INTO rcDroppedOffDate[RentalContract]*'b'[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        PICK a,b FROM rcDroppedOffDate~;'a'[RentalContract]*'b'[RentalContract]
        THEN INSERT INTO lastDate[CompNrExcessDays]*'a'[CompNrExcessDays]*'b'[CompNrExcessDays]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[CompNrExcessDays]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        NEW x:Date;
        ALL of INSERT INTO rcDroppedOffDate[RentalContract]*'b'[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
        INSERT INTO lastDate[CompNrExcessDays]*'a'[CompNrExcessDays]*'b'[CompNrExcessDays]
        SELECTFROM 'b'[CompNrExcessDays]*'a'[CompNrExcessDays]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~

```

```

(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate) /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate) /\ rcEndDate;rcEndDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
PICK a,b FROM (firstDate;rcEndDate~ /\ lastDate;rcDroppedOffDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
THEN BLOCK
(CANNOT CHANGE V[CompNrExcessDays*RentalContract] FROM Triggers)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDroppedOffBranch~ /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)
(MAINAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)
(MAINAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
(MAINAINING -(rcDroppedOffDate~;rcDroppedOffDate) /\ I[Date] FROM UNI rcDroppedOffDate)

```

----- Derivation ----->

```

ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDroppedOffBranch~ /\ I[Date] FROM UNI rcDroppedOffDate)

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDroppedOffBranch~ /\ I[Date] FROM UNI rcDroppedOffDate)
INSERT INTO rentalPeriod[RentalContract*Integer]
SELECTFROM ((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)

(TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)
INSERT INTO Isn{detyp=Integer}
SELECTFROM (rentalPeriod~;rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~ /\ I[Date] FROM UNI rcDroppedOffDate)

(TO MAINTAIN -(rentalPeriod~;rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
(TO MAINTAIN -(rentalExcessPeriod~;rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~ /\ I[Date] FROM UNI rcDroppedOffDate)
INSERT INTO rentalExcessPeriod[RentalContract*Integer]
SELECTFROM ((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~ /\ I[Date] FROM UNI rcDroppedOffDate);compNrExcessDays)
INSERT INTO Isn{detyp=Date}
SELECTFROM ((rcDroppedOffDate /\ Delta)~;rcDroppedOffDate /\ -I[Date]) /\ ((rcDroppedOffDate /\ Delta) /\ I[Date])

(TO MAINTAIN -(rcDroppedOffDate~;rcDroppedOffDate) /\ I[Date] FROM UNI rcDroppedOffDate)
INSERT INTO Isn{detyp=RentalContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate) /\ I[Date] FROM UNI rcDroppedOffDate)
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract] /\ I[Date] FROM UNI RentalContract)
THEN INSERT INTO rcStartDate[RentalContract*Date]
SELECTFROM 'a'[RentalContract]*'b'[Date]

```

```

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
PICK a,b FROM rcStartDate~;('a'[RentalContract*Date]
THEN INSERT INTO earliestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[CompNrDays]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
INSERT INTO earliestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[RentalContract*Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate~
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Date]
THEN INSERT INTO rcDroppedOffDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[CompNrDays]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
PICK a,b FROM rcDroppedOffDate~;('a'[RentalContract*Date]
THEN INSERT INTO latestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
        ALL of INSERT INTO rcDroppedOffDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[CompNrDays]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
INSERT INTO latestDate[CompNrDays*Date]
        SELECTFROM 'b'[CompNrDays]*'a'[RentalContract*Date]

        (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate~
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;r
PICK a,b FROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate~
THEN BLOCK
        (CANNOT CHANGE V[CompNrDays*RentalContract] FROM Trigger rental pe
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffDate;rcDroppedOffDate~
        THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Date]
        THEN INSERT INTO rcEndDate[RentalContract*Date]

```

```

SELECTFROM 'a' [RentalContract]*'b' [Date

(TO MAINTAIN -(rcDroppedOffDate;rcDropp
PICK a,b FROM rcEndDate~;('a' [RentalContract]
THEN INSERT INTO firstDate[CompNrExcessDays*D
SELECTFROM 'b' [CompNrExcessDays]*'a' [Da

(TO MAINTAIN -(rcDroppedOffDate;rcDropp
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
ALL of INSERT INTO rcEndDate[RentalContract*Date]
SELECTFROM 'a' [RentalContract]*'b' [CompNrE

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
INSERT INTO firstDate[CompNrExcessDays*Date]
SELECTFROM 'b' [CompNrExcessDays]*'a' [Renta

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndD
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [Renta
THEN INSERT INTO rcDroppedOffDate[RentalContr
SELECTFROM 'a' [RentalContract]*'b' [Date

(TO MAINTAIN -(rcDroppedOffDate;rcDropp
PICK a,b FROM rcDroppedOffDate~;('a' [RentalCo
THEN INSERT INTO lastDate[CompNrExcessDays*Da
SELECTFROM 'b' [CompNrExcessDays]*'a' [Da

(TO MAINTAIN -(rcDroppedOffDate;rcDropp
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
ALL of INSERT INTO rcDroppedOffDate[RentalContract
SELECTFROM 'a' [RentalContract]*'b' [CompNrE

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
INSERT INTO lastDate[CompNrExcessDays*Date]
SELECTFROM 'b' [CompNrExcessDays]*'a' [Renta

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndD
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcE
PICK a,b FROM (firstDate;rcEndDate~ /\ lastDate;rcDroppedOffDate~);(rc
THEN BLOCK
(CANNOT CHANGE V[CompNrExcessDays*RentalContract] FROM Trigger exc
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I
(MAINTAINING -(rentalIsPaidQ;'Yes' [YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop

```

```

(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Rental
(MAINAINING -(rcDroppedOffDate~;rcDroppedOffDate) \/ I[Date] FROM UNI rcDroppedOffDa

```

<-----End Derivation --

```

ON DELETE Delta FROM rcDroppedOffDate[RentalContract*Date] EXECUTE      -- (ECA ru
ALL of ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -((rcStartDate;earliestDate~ /\ (rcDroppedOffDate /\
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrDays];(earliestDate;rcStartD
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -((rcStartDate;earliestDate~ /\ (rcDroppedOffDate /\
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrDays];(earliestDate;rcStartD
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM -((rcStartDate;earliestDate~ /\ (rcDroppedOffDate /\ -
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartD
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -((rcEndDate;firstDate~ /\ (rcDroppedOffDate /\ -Delt
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rc
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEnd
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rc
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -((rcEndDate;firstDate~ /\ (rcDroppedOffDate /\ -Delt
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rc
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEnd
      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rc

```



```

DELETE FROM Isn{dety=RentContract}
SELECTFROM -(rcEndDate;firstDate~ /\ (rcDroppedOffDate /\ -Delta

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rc
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
DELETE FROM rcDroppedOffCar[RentalContract*Car]
SELECTFROM -(I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffBranch

      (TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[R
(MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDrop

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(rcStartDate;earliestDate~ /\ (rcDroppedOffDate /\ -Delta

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrDays];(earliestDate;rcStartDate~

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -(rcStartDate;earliestDate~ /\ (rcDroppedOffDate /\ -Delta

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrDays];(earliestDate;rcStartDate~

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
DELETE FROM Isn{dety=RentContract}
SELECTFROM -(rcStartDate;earliestDate~ /\ (rcDroppedOffDate /\ -Delta

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcSta
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(rcEndDate;firstDate~ /\ (rcDroppedOffDate /\ -Delta);la

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEndDate~

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -(rcEndDate;firstDate~ /\ (rcDroppedOffDate /\ -Delta);la

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa

```

```

DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEndDate~

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
DELETE FROM Isn{dety=RentatContract}
SELECTFROM -(rcEndDate;firstDate~ /\ (rcDroppedOffDate /\ -Delta);las

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDa
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I
DELETE FROM rcDroppedOffCar[RentalContract*Car]
SELECTFROM -(I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOffBranch~ /\

(TO MAINTAIN -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcD
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Rental
(MAINTAINING -rcDroppedOffCar \/ (I[RentalContract] /\ rcDroppedOffBranch;rcDroppedOff

```

<-----End Derivation --

```

ON INSERT Delta IN rcDroppedOffBranch[RentalContract*Branch] EXECUTE -- (ECA :
ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBra

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffff
INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbr
INSERT INTO Isn{dety=Amount}
SELECTFROM (rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~

(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbran
INSERT INTO Isn{dety=Branch}
SELECTFROM ((rcDroppedOffBranch \/ Delta)~;rcDroppedOffBranch /\ -I[Branch

(TO MAINTAIN -(rcDroppedOffBranch~;rcDroppedOffBranch) \/ I[Branch] FROM
INSERT INTO Isn{dety=RentalContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffBranch;dis
THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[Amount]

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDr
PICK a,b FROM rentalLocationPenaltyCharge~;((rcDroppedOffBr
THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Amount]

```

```

        (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropo
(MAINAINING  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;d
NEW x:Amount;
    ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Am
        SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoff

        (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropo
INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
        SELECTFROM ((distbranch;rcDroppedOffBranch~ /\ distbranch

        (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropo
        (MAINAINING  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch
        (MAINAINING  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;d
        (MAINAINING  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbran
(MAINAINING  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;r
(MAINAINING  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINAINING  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINAINING  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINAINING  -(rcDroppedOffBranch~;rcDroppedOffBranch) \/ I[Branch] FROM UNI rcD

```

----- Derivation ----->

```

ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
    SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;(

    (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch
INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d

    (TO MAINTAIN  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~
INSERT INTO Isn{detyp=Amount}
    SELECTFROM (rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ r

    (TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /
INSERT INTO Isn{detyp=Branch}
    SELECTFROM ((rcDroppedOffBranch \/ Delta)~;rcDroppedOffBranch /\ -I[Branch])

    (TO MAINTAIN  -(rcDroppedOffBranch~;rcDroppedOffBranch) \/ I[Branch] FROM UNI
INSERT INTO Isn{detyp=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcDroppedOffBranch;distbran
    THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amou
        SELECTFROM 'a'[RentalContract]*'b'[Amount]

        (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoff
PICK a,b FROM rentalLocationPenaltyCharge~;((rcDroppedOffBranch;
    THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]

```



```

INSERT INTO Isn{dety=RentContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract] /\ (Delta~;Delta~

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalHasEnded[RentalContract*RentalContract] EXECUTE --
ALL of DELETE FROM Isn{dety=Car}
    SELECTFROM -(carAvailableAt;carAvailableAt~) /\ -(rcIssuedCar~;(rentalHasEnded;rentalHasEnded~) /\ rcIssuedCar~;rcIssuedCar~) /\ rcIssuedCar~;rcIssuedCar~

(TO MAINTAIN -I[Car] /\ carAvailableAt;carAvailableAt~ /\ rcIssuedCar~;(rentalHasEnded;rentalHasEnded~) /\ rcIssuedCar~;rcIssuedCar~) /\ rcIssuedCar~;rcIssuedCar~
ONE OF DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
    SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcIssuedCar~;rcIssuedCar~) /\ rcIssuedCar~;rcIssuedCar~

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]
DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
    SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch[RentalContract*Branch]) /\ rcDroppedOffBranch[RentalContract*Branch]
DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
    SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffBranch[RentalContract*Branch]) /\ rcDroppedOffBranch[RentalContract*Branch]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch[RentalContract*Branch]) /\ rcDroppedOffBranch[RentalContract*Branch]
DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
    SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffBranch[RentalContract*Branch]) /\ rcDroppedOffBranch[RentalContract*Branch]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffDate[RentalContract*Date]) /\ rcDroppedOffDate[RentalContract*Date]
DELETE FROM rcDroppedOffDate[RentalContract*Date]
    SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffDate[RentalContract*Date]) /\ rcDroppedOffDate[RentalContract*Date]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffDate[RentalContract*Date]) /\ rcDroppedOffDate[RentalContract*Date]
DELETE FROM rcDroppedOffDate[RentalContract*Date]
    SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffDate[RentalContract*Date]) /\ rcDroppedOffDate[RentalContract*Date]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]
DELETE FROM rcDroppedOffCar[RentalContract*Car]
    SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]
DELETE FROM rcDroppedOffCar[RentalContract*Car]
    SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]
DELETE FROM rentalHasStarted[RentalContract*RentalContract]
    SELECTFROM (-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffCar[RentalContract*Car]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffCar[RentalContract*Car]) /\ rcDroppedOffCar[RentalContract*Car]
DELETE FROM rentalHasStarted[RentalContract*RentalContract]
    SELECTFROM (-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalHasEnded;rentalHasEnded~) /\ rcDroppedOffCar[RentalContract*Car]

```

```

DELETE FROM Isn{dety=RentContract}
SELECTFROM (-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIs

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDro
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffB
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHa
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;r

```

----- Derivation ----->

```

ALL of DELETE FROM Isn{dety=Car}
      SELECTFROM -(carAvailableAt;carAvailableAt~) /\ -(rcIssuedCar~;(rentalHasStar

      (TO MAINTAIN  -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(renta
ONE OF DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
      SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPaid

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
      SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
      SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rcDroppedOffCar[RentalContract*Car]
      SELECTFROM ((-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rcDroppedOffCar[RentalContract*Car]
      SELECTFROM ((-rentalHasEnded~ /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPa

      (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedO
DELETE FROM rentalHasStarted[RentalContract*RentalContract]
      SELECTFROM (-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPaid

```

```

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
DELETE FROM Isn{dety=RentContract}
        SELECTFROM (-rentalHasEnded /\ rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        (MAINTAINING -I[Car] /\ carAvailableAt;carAvailableAt~ /\ rcIssuedCar~;(rentalHasStar
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop

```

<-----End Derivation --

```

ON INSERT Delta IN rentalIsPaidQ[RentalContract*YesNo] EXECUTE  -- (ECA rule 4
ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
        SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];(rentalIsPaidQ /\ Delta)~ /\ rcDroppedOffBranch;rcDrop

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        THEN INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[Amount]

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        PICK a,b FROM rentalCharge~;((rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        THEN INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM 'b'[RentalContract]*'a'[Amount]

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]
NEW x:Amount;
        INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM ((rentalIsPaidQ;'Yes'[YesNo];(rentalIsPaidQ /\ Delta)~ /\ rcDroppedOffBranch;rcDrop

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]
INSERT INTO Isn{dety=Amount}
        SELECTFROM (rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];(rentalIsPaidQ /\ Delta)~ /\ rcDroppedOffBranch;rcDrop

        (TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
INSERT INTO Isn{dety=RentalContract}
        SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

INSERT INTO Isn{dety=YesNo}
        SELECTFROM (Delta~;Delta /\ I[YesNo]) - I[YesNo]

        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \

```

----- Derivation ----->

```

ALL of INSERT INTO rentalHasEnded[RentalContract*RentalContract]
    SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];(rentalIsPaidQ /\ Delta)~ /\ rcDroppedOffBranch;rcDrop

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalIsPaidQ;'Yes'[YesNo];
    THEN INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[Amount]

        (TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
        PICK a,b FROM rentalCharge~;((rentalIsPaidQ;'Yes'[YesNo];(rental
        THEN INSERT INTO rentalCharge[RentalContract*Amount]
            SELECTFROM 'b'[RentalContract]*'a'[Amount]

            (TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
            (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCon
            NEW x:Amount;
            INSERT INTO rentalCharge[RentalContract*Amount]
                SELECTFROM ((rentalIsPaidQ;'Yes'[YesNo];(rentalIsPaidQ /\ Delta)~ /\

                (TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rental
                (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCon
                (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract])
                INSERT INTO Isn{detyp=Amount}
                SELECTFROM (rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];(rentalIsPaidQ /\ Delta)~

                (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
                INSERT INTO Isn{detyp=RentalContract}
                SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

                INSERT INTO Isn{detyp=YesNo}
                SELECTFROM (Delta~;Delta /\ I[YesNo]) - I[YesNo]

                (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
                (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) /\ ren
                (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) /\ ren

```

<-----End Derivation --

```

ON INSERT Delta IN rentalCharge[RentalContract*Amount] EXECUTE -- (ECA rule 4
ALL of INSERT INTO Isn{detyp=Amount}
    SELECTFROM ((rentalCharge /\ Delta)~;rentalIsPaidQ;'Yes'[YesNo];rentalIs

    (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
    (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
    (TO MAINTAIN -(rentalCharge~;rentalCharge) /\ I[Amount] FROM UNI rentalC

```



```

INSERT INTO Isn{dety=RentContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINTAINING -(rentalCharge~;rentalCharge) \/ I[Amount] FROM UNI rentalCharge::R

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Amount}
SELECTFROM ((rentalCharge \/ Delta)~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~

(TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
(TO MAINTAIN -(rentalCharge~;rentalCharge) \/ I[Amount] FROM UNI rentalCharge
INSERT INTO Isn{dety=RentContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \/ ren
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
(MAINTAINING -(rentalCharge~;rentalCharge) \/ I[Amount] FROM UNI rentalCharge::Rental

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalCharge[RentalContract*Amount] EXECUTE -- (ECA rule
ALL of ONE OF DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
SELECTFROM (-((rentalCharge /\ -Delta);(rentalCharge /\ -Delta)~)

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Ren
DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
SELECTFROM (-((rentalCharge /\ -Delta);(rentalCharge~ /\ -Delta)~)

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Ren
DELETE FROM Isn{dety=RentContract}
SELECTFROM -((rentalCharge /\ -Delta);(rentalCharge /\ -Delta)~)

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Ren
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContr
ONE OF DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM ((-rentalCharge /\ (rentalBasicCharge;arg1~ /\ rentalP

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;((-rentalCharge~ /\ compRentalCharge~

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]

```

```

SELECTFROM ((-rentalCharge /\ (rentalBasicCharge;arg1~ /\ rentalP

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
DELETE FROM arg2[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;((-rentalCharge~ /\ compRentalCharge~

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM ((-rentalCharge /\ (rentalBasicCharge;arg1~ /\ rentalP

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;((-rentalCharge~ /\ compRentalCharge~

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;ar
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ r
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
SELECTFROM (-((rentalCharge /\ -Delta);(rentalCharge /\ -Delta)~) /\ r

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCo
DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
SELECTFROM (-((rentalCharge /\ -Delta);(rentalCharge~ /\ -Delta)) /\

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCo
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -((rentalCharge /\ -Delta);(rentalCharge /\ -Delta)~) /\ re

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCo
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract])
ONE OF DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM ((-rentalCharge /\ (rentalBasicCharge;arg1~ /\ rentalPenalt

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /
DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;((-rentalCharge~ /\ compRentalCharge~;(arg

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM ((-rentalCharge /\ (rentalBasicCharge;arg1~ /\ rentalPenalt

```

```

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\
DELETE FROM arg2[CompRentalCharge*Amount]
      SELECTFROM compRentalCharge;((-rentalCharge~ /\ compRentalCharge~;(arg

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM ((-rentalCharge /\ (rentalBasicCharge;arg1~ /\ rentalPenalt

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\
DELETE FROM arg3[CompRentalCharge*Amount]
      SELECTFROM compRentalCharge;((-rentalCharge~ /\ compRentalCharge~;(arg

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\
DELETE FROM compRentalCharge[CompRentalCharge*Amount]
      SELECTFROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\ ar

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\
      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rental
(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) /\ ren
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio

```

<-----End Derivation --

```

ON INSERT Delta IN rentalPeriod[RentalContract*Integer] EXECUTE      -- (ECA rule
ALL of INSERT INTO Isn{dety=Integer}
      SELECTFROM ((rentalPeriod \/ Delta)~;(rcStartDate;earliestDate~ /\ rcDrop

      (TO MAINTAIN  -((rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
      (TO MAINTAIN  -((rentalPeriod~;rentalPeriod) \/ I[Integer] FROM UNI rental
INSERT INTO rentalBasicCharge[RentalContract*Amount]
      SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTari

      (TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalT
INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar

      (TO MAINTAIN  -((rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
INSERT INTO Isn{dety=RentalContract}
      SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcIssuedCar;rcIssuedCar~ /\ r
      THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[I
      THEN INSERT INTO rentalPeriod[RentalContract]
      SELECTFROM 'a'[RentalContract]*'b'

      (TO MAINTAIN  -((rcIssuedCar;rcIssuedCar~ /\ rcIssuedCar
      PICK a,b FROM rentalPeriod~;('a'[RentalContract]

```

```

THEN INSERT INTO ctcNrOfDays[CompTariffedCharge]
SELECTFROM 'b'[CompTariffedCharge]

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
NEW x:Integer;
ALL of INSERT INTO rentalPeriod[
SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
INSERT INTO ctcNrOfDays[CompTariffedCharge]
SELECTFROM 'b'[CompTariffedCharge]*'a'[CompTariffedCharge]

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rcIssuedCar[
SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO carType[
SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
PICK a,b FROM carType[
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
TH

PI
TH

(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[
NEW x:Amount;
ALL of

(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod[

```



```

PICK
THEN

(MAINAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

(TO
(MAINAINING
(MAINAINING
(MAINAINING -(rcIss
(MAINAINING -(rcIssuedCar;rcIss
NEW x:CarType;
ALL of INSERT INTO carType[Car]
SELECTFROM 'x'[Car]*'

(TO MAINTAIN -(rcIssu
ONE OF ONE NONEMPTY AL
THEN INS
SE

(TO
PICK a,b
THEN INS
SE

(TO
(MAINAINING -(
NEW x:Amount;
ALL of INSERT
SELEC

(TO MA
INSERT
SELEC

(TO MA
(MAINAINING -(
(MAINAINING -(
(MAINAINING -(rcIssue
(MAINAINING -(rcIssuedCar;rc
(MAINAINING -(rcIssuedCar;rcIss

```

```

(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rcDroppedOffDate;latestDate~);compN
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rcDroppedOffDate;latestDate~);compN
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
PICK a,b FROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariffPer
THEN BLOCK
(CANNOT CHANGE V[CompTariffedCharge*RentalContract] FROM Trig
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
(MAINAINING -(rentalPeriod~;rentalPeriod) /\ I[Integer] FROM UNI rentalPeriod:

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{detyp=Integer}
  SELECTFROM ((rentalPeriod /\ Delta)~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN
  (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN
  (TO MAINTAIN -(rentalPeriod~;rentalPeriod) /\ I[Integer] FROM UNI rentalPeriod:
  INSERT INTO rentalBasicCharge[RentalContract*Amount]
  SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
  (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
  INSERT INTO Isn{detyp=Amount}
  SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
  (TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
  INSERT INTO Isn{detyp=RentalContract}
  SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
  THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[CompTariffedCharge]*'a'[CompTariffedCharge])
    THEN INSERT INTO rentalPeriod[RentalContract*Amount]
      SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]*'a'[CompTariffedCharge]
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
      PICK a,b FROM rentalPeriod~;('a'[RentalContract]*'b'[CompTariffedCharge]*'a'[CompTariffedCharge])
      THEN INSERT INTO ctcNrOfDays[CompTariffedCharge]*'a'[CompTariffedCharge]
        SELECTFROM 'b'[CompTariffedCharge]*'a'[CompTariffedCharge]
    (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Integer] FROM UNI rentalPeriod:
      NEW x:Integer;
      ALL of INSERT INTO rentalPeriod[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[CompTariffedCharge]*'a'[CompTariffedCharge]

```



```

ONE OF ONE NONEMPTY ALTE
THEN INSE
SELE

(TO M
PICK a,b F
THEN INSE
SELE

(TO M
(MAINTAINING -(rc
NEW x:Amount;
ALL of INSERT I
SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINTAINING -(
(MAINTAINING -(rc
(MAINTAINING -(rcIssuedC
(MAINTAINING -(rcIssuedCar;rcIs
(MAINTAINING -(rcIssuedCar;rcIssu
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
NEW x:Car;
ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
SELECTFROM 'a'[RentalContract]*'b'[CompTar

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b
THEN INSERT INTO carType[Car*
SELECTFROM 'a'[Car]*'b'

(TO MAINTAIN -(rcIssued
PICK a,b FROM carType~;'x'[C
THEN ONE OF ONE NONEMPTY ALTE
THEN INSE
SELE

(TO M
PICK a,b F
THEN INSE
SELE

(TO M
(MAINTAINING -(rc
NEW x:Amount;

```

```

ALL of INSERT I
SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINAINING -(
(MAINAINING -(rc
(MAINAINING -(rcIssuedC
(MAINAINING -(rcIssuedCar;rcIssuedC
NEW x:CarType;
ALL of INSERT INTO carType[Car*Car
SELECTFROM 'x'[Car]*'a'[Re

(TO MAINTAIN -(rcIssuedCar
ONE OF ONE NONEMPTY ALTERNA
THEN INSERT I
SELECTF

(TO MAIN
PICK a,b FROM
THEN INSERT I
SELECTF

(TO MAIN
(MAINAINING -(rcIss
NEW x:Amount;
ALL of INSERT INTO
SELECTFROM

(TO MAINTAI
INSERT INTO
SELECTFROM

(TO MAINTAI
(MAINAINING -(rcI
(MAINAINING -(rcIss
(MAINAINING -(rcIssuedCar;
(MAINAINING -(rcIssuedCar;rcIssue
(MAINAINING -(rcIssuedCar;rcIssuedC
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalP
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;ren
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeri
PICK a,b FROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariff
THEN BLOCK
(CANNOT CHANGE V[CompTariffedCharge*RentalContract] FROM Trigger r

```

```

      (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Ren
(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
(MAINTAINING -(rentalPeriod~;rentalPeriod) \/ I[Integer] FROM UNI rentalPeriod::Renta

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalPeriod[RentalContract*Integer] EXECUTE -- (ECA rule
ALL of ONE OF DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM ((-rentalPeriod /\ (rcStartDate;earliestDate~ /\ rcDrope

      (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;lat
DELETE FROM earliestDate[CompNrDays*Date]
      SELECTFROM compNrDays;((-rentalPeriod~ /\ compNrDays~;(earliestDa

      (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;lat
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM ((-rentalPeriod /\ (rcStartDate;earliestDate~ /\ rcDrope

      (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;lat
DELETE FROM latestDate[CompNrDays*Date]
      SELECTFROM compNrDays;((-rentalPeriod~ /\ compNrDays~;(earliestDa

      (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;lat
DELETE FROM compNrDays[CompNrDays*Integer]
      SELECTFROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffD

      (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;lat
(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM (-(((rentalPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedC

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;(

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM (-(((rentalPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedC

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;(

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
DELETE FROM Isn{detypr=RentalContract}

```

```

SELECTFROM -(((rentalPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedCar;

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPer
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNr
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Renta

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM ((-rentalPeriod /\ (rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
DELETE FROM earliestDate[CompNrDays*Date]
      SELECTFROM compNrDays;((-rentalPeriod~ /\ compNrDays~;(earliestDate;rcStartDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM ((-rentalPeriod /\ (rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
DELETE FROM latestDate[CompNrDays*Date]
      SELECTFROM compNrDays;((-rentalPeriod~ /\ compNrDays~;(earliestDate;rcStartDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
DELETE FROM compNrDays[CompNrDays*Integer]
      SELECTFROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate~);compNrDays*Date]
      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays*Date]
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -(((rentalPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedCar;car~ /\ rentalPeriod;rentalPeriod~ /\
      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;(rentalPeriod;rentalPeriod~ /\
      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -(((rentalPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedCar;car~ /\ rentalPeriod;rentalPeriod~ /\
      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;(rentalPeriod;rentalPeriod~ /\
      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM -(((rentalPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedCar;car~ /\ rentalPeriod;rentalPeriod~ /\

```

```

        (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~
        (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Ren
        (MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
        (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont

```

<-----End Derivation --

```

ON INSERT Delta IN rentalBasicCharge[RentalContract*Amount] EXECUTE  -- (ECA r
ALL of INSERT INTO rentalCharge[RentalContract*Amount]
    SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ ren

        (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ :
        INSERT INTO Isn{dety=Amount}
        SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharg

        (TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
        (TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
        (TO MAINTAIN  -(rentalBasicCharge~;rentalBasicCharge) /\ I[Amount] FROM U
        INSERT INTO Isn{dety=RentalContract}
        SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalLocationPenaltyCharge;r
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[R
        THEN INSERT INTO rentalBasicCharge[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
            PICK a,b FROM rentalBasicCharge~;('a'[RentalContract]*'b'[RentalContract]
            THEN INSERT INTO arg1[CompRentalCharge*Amount]
            SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

                (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                (MAINTAINING -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                NEW x:Amount;
                ALL of INSERT INTO rentalBasicCharge[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

                    (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                    INSERT INTO arg1[CompRentalCharge*Amount]
                    SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

                        (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                        (MAINTAINING -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                        (MAINTAINING -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                        (MAINTAINING -(rentalLocationPenaltyCharge;rentalPeriod;ctcNrOfDays~ /\ rcIssued
                        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[RentalContract]
                        THEN INSERT INTO rentalPenaltyCharge[RentalContract*Amount]

```

```

SELECTFROM 'a'[RentalContract]*'b'

(TO MAINTAIN -(rentalLocationPenal
PICK a,b FROM rentalPenaltyCharge~;('a'[
THEN INSERT INTO arg2[CompRentalCharge*Am
SELECTFROM 'b'[CompRentalCharge]*'

(TO MAINTAIN -(rentalLocationPenal
(MAINTAINING -(rentalLocationPenaltyCharge;rent
NEW x:Amount;
ALL of INSERT INTO rentalPenaltyCharge[Rental
SELECTFROM 'a'[RentalContract]*'b'[Con

(TO MAINTAIN -(rentalLocationPenaltyC
INSERT INTO arg2[CompRentalCharge*Amou
SELECTFROM 'b'[CompRentalCharge]*'a'[

(TO MAINTAIN -(rentalLocationPenaltyC
(MAINTAINING -(rentalLocationPenaltyCharge;re
(MAINTAINING -(rentalLocationPenaltyCharge;rent
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocat
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
THEN INSERT INTO rentalLocationPenaltyCh
SELECTFROM 'a'[RentalContract]*'b'

(TO MAINTAIN -(rentalLocationPenal
PICK a,b FROM rentalLocationPenaltyCharge
THEN INSERT INTO arg3[CompRentalCharge*Am
SELECTFROM 'b'[CompRentalCharge]*'

(TO MAINTAIN -(rentalLocationPenal
(MAINTAINING -(rentalLocationPenaltyCharge;rent
NEW x:Amount;
ALL of INSERT INTO rentalLocationPenaltyCharge
SELECTFROM 'a'[RentalContract]*'b'[Con

(TO MAINTAIN -(rentalLocationPenaltyC
INSERT INTO arg3[CompRentalCharge*Amou
SELECTFROM 'b'[CompRentalCharge]*'a'[

(TO MAINTAIN -(rentalLocationPenaltyC
(MAINTAINING -(rentalLocationPenaltyCharge;re
(MAINTAINING -(rentalLocationPenaltyCharge;rent
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocat
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenal
PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge
THEN BLOCK
(CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Triggere
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLoc

```

```

(MAINAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ renta
(MAINAINING -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI renta

```

----- Derivation ----->

```

ALL of INSERT INTO rentalCharge[RentalContract*Amount]
    SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ renta
INSERT INTO Isn{dety=Amount}
    SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
(TO MAINTAIN -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI re
INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalLocationPenaltyCharge;rental
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
        THEN INSERT INTO rentalBasicCharge[RentalCont
            SELECTFROM 'a'[RentalContract]*'b'[Amou

                (TO MAINTAIN -(rentalLocationPenaltyCha
                PICK a,b FROM rentalBasicCharge~;'a'[RentalC
                THEN INSERT INTO arg1[CompRentalCharge*Amount
                    SELECTFROM 'b'[CompRentalCharge]*'a'[Am

                    (TO MAINTAIN -(rentalLocationPenaltyCha
(MAINAINING -(rentalLocationPenaltyCharge;rentalLoc
NEW x:Amount;
    ALL of INSERT INTO rentalBasicCharge[RentalContrac
        SELECTFROM 'a'[RentalContract]*'b'[CompRen

            (TO MAINTAIN -(rentalLocationPenaltyCharge
            INSERT INTO arg1[CompRentalCharge*Amount]
            SELECTFROM 'b'[CompRentalCharge]*'a'[Renta

                (TO MAINTAIN -(rentalLocationPenaltyCharge
                (MAINAINING -(rentalLocationPenaltyCharge;rentalL
                (MAINAINING -(rentalLocationPenaltyCharge;rentalLoc
                (MAINAINING -(rentalLocationPenaltyCharge;rentalLocationPe
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
    THEN INSERT INTO rentalPenaltyCharge[RentalCo
        SELECTFROM 'a'[RentalContract]*'b'[Amou

```

```

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
PICK a,b FROM rentalPenaltyCharge~;('a'[RentalContract]
THEN INSERT INTO arg2[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
NEW x:Amount;
        ALL of INSERT INTO rentalPenaltyCharge[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
INSERT INTO arg2[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
        THEN INSERT INTO rentalLocationPenaltyCharge[CompRentalCharge]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
PICK a,b FROM rentalLocationPenaltyCharge~;('a'[RentalContract]
THEN INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
NEW x:Amount;
        ALL of INSERT INTO rentalLocationPenaltyCharge[CompRentalCharge]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN  -(rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\
THEN BLOCK
        (CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Trigger rentalContract
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalContract
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;carType;rentalContract)

```



```

(MAINAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge)
(MAINAINING -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI rentalBasicCharge

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalBasicCharge[RentalContract*Amount] EXECUTE -- (ECA
ALL of ONE OF DELETE FROM rentalPeriod[RentalContract*Integer]
    SELECTFROM ((-rentalBasicCharge /\ (rentalPeriod;ctcNrOfDays~ /\
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
    SELECTFROM compTariffedCharge;((-rentalBasicCharge~ /\ compTariffedCharge
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
DELETE FROM rcIssuedCar[RentalContract*Car]
    SELECTFROM ((-rentalBasicCharge /\ (rentalPeriod;ctcNrOfDays~ /\
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
DELETE FROM carType[Car*CarType]
    SELECTFROM rcIssuedCar~;((-rentalBasicCharge /\ (rentalPeriod;ctcNrOfDays~
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
DELETE FROM rentalTariffPerDay[CarType*Amount]
    SELECTFROM carType~;rcIssuedCar~;((-rentalBasicCharge /\ (rentalPeriod;ctcNrOfDays~
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
    SELECTFROM compTariffedCharge;((-rentalBasicCharge~ /\ compTariffedCharge
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
    SELECTFROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariffPerDay
    (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM (-(((rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyCharge
    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;(rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyCharge
    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
    SELECTFROM (-(((rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyCharge
    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]

```

```

SELECTFROM (- (V[RentalContract*CompRentalCharge]; (arg1; (rentalBas

(TO MAINTAIN - (rentalLocationPenaltyCharge; rentalLocationPenaltyC
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (- (((rentalBasicCharge /\ -Delta); arg1~ /\ rentalPenal

(TO MAINTAIN - (rentalLocationPenaltyCharge; rentalLocationPenaltyC
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (- (V[RentalContract*CompRentalCharge]; (arg1; (rentalBas

(TO MAINTAIN - (rentalLocationPenaltyCharge; rentalLocationPenaltyC
DELETE FROM Isn{dety=RentalContract}
SELECTFROM - (((rentalBasicCharge /\ -Delta); arg1~ /\ rentalPenalt;

(TO MAINTAIN - (rentalLocationPenaltyCharge; rentalLocationPenaltyC
(MAINTAINING - (rentalLocationPenaltyCharge; rentalLocationPenaltyCharge~ /\
(MAINTAINING - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; rentalTariffPer
(MAINTAINING - (rentalLocationPenaltyCharge; rentalLocationPenaltyCharge~ /\ rental

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM ((-rentalBasicCharge /\ (rentalPeriod; ctcNrOfDays~ /\ rcIss

(TO MAINTAIN - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; renta
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM compTariffedCharge; ((-rentalBasicCharge~ /\ compTariffedCha

(TO MAINTAIN - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; renta
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM ((-rentalBasicCharge /\ (rentalPeriod; ctcNrOfDays~ /\ rcIss

(TO MAINTAIN - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; renta
DELETE FROM carType[Car*CarType]
SELECTFROM rcIssuedCar~; ((-rentalBasicCharge /\ (rentalPeriod; ctcNrOfD

(TO MAINTAIN - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; renta
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM carType~; rcIssuedCar~; ((-rentalBasicCharge /\ (rentalPeriod

(TO MAINTAIN - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; renta
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge; ((-rentalBasicCharge~ /\ compTariffedCha

(TO MAINTAIN - ((rentalPeriod; ctcNrOfDays~ /\ rcIssuedCar; carType; renta
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM (ctcNrOfDays; rentalPeriod~ /\ ctcDailyAmount; rentalTariffPe

```

```

      (TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;renta
(MAINAINING  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffP
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM  (-(((rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyCha

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;(rentalBasicCha

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  (-(((rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyCha

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;(rentalBasicCha

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  (-(((rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyCha

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;(rentalBasicCha

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM  -(((rentalBasicCharge /\ -Delta);arg1~ /\ rentalPenaltyChar

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
      (MAINAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ ren
(MAINAINING  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena

```

<-----End Derivation --

```

ON INSERT Delta IN rentalExcessPeriod[RentalContract*Integer] EXECUTE  -- (ECA
ALL of INSERT INTO Isn{detyp=Integer}
      SELECTFROM  ((rentalExcessPeriod \/ Delta)~;(rcDroppedOffDate;lastDate~ /\

      (TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
      (TO MAINTAIN  -(rentalExcessPeriod~;rentalExcessPeriod) \/ I[Integer] FROM
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exce

      (TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;e
INSERT INTO Isn{detyp=Amount}
      SELECTFROM  (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcI

```

```

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
INSERT INTO Isn{dety=RentContract}
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

```

```

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalExcessPeriod;(rentalExcessPeriod;
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rentalExcessPeriod[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod;
PICK a,b FROM rentalExcessPeriod~;('a'[RentalContract]
THEN INSERT INTO ctcNrOfDays[CompTariffedCharge]
SELECTFROM 'b'[CompTariffedCharge]*'a'[RentalContract]

```

```

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod;
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod;
NEW x:Integer;
ALL of INSERT INTO rentalExcessPeriod[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod;
INSERT INTO ctcNrOfDays[CompTariffedCharge]
SELECTFROM 'b'[CompTariffedCharge]*'a'[RentalContract]

```

```

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod;
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod;
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod;
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod;
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rcIssuedCar[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod;
PICK a,b FROM rcIssuedCar~;('a'[RentalContract]
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO carType
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod;
PICK a,b FROM carType
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO carType
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

PI
TH

```



```

(TO MAINTAIN -(rentalExcessPeriod;ren
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK
THEN INSERT INTO carType
SELECTFROM 'a' [Car]

(TO MAINTAIN -(ren
PICK a,b FROM carType~;(
THEN ONE OF ONE NONEMPTY
THEN

PICK
THEN

(MAINTAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

(TO
(MAINTAINING
(MAINTAINING
(MAINTAINING -(rent
(MAINTAINING -(rentalExcessPeri
NEW x:CarType;
ALL of INSERT INTO carType[Car]
SELECTFROM 'x' [Car]*'.

(TO MAINTAIN -(rental
ONE OF ONE NONEMPTY AL
THEN INS
SE

(TO
PICK a,b
THEN INS
SE

(TO
(MAINTAINING -(
NEW x:Amount;
ALL of INSERT

```



```

SELECTFROM 'a' [RentalContract]*'b' [Inte

      (TO MAINTAIN -(rentalExcessPeriod;renta
PICK a,b FROM rentalExcessPeriod~;('a' [Rental
THEN INSERT INTO ctcNrOfDays[CompTariffedChar
      SELECTFROM 'b' [CompTariffedCharge]*'a' [

      (TO MAINTAIN -(rentalExcessPeriod;renta
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod
NEW x:Integer;
      ALL of INSERT INTO rentalExcessPeriod[RentalContra
      SELECTFROM 'a' [RentalContract]*'b' [CompTar

      (TO MAINTAIN -(rentalExcessPeriod;rentalEx
INSERT INTO ctcNrOfDays[CompTariffedCharge*
      SELECTFROM 'b' [CompTariffedCharge]*'a' [Ren

      (TO MAINTAIN -(rentalExcessPeriod;rentalEx
      (MAINTAINING -(rentalExcessPeriod;rentalExcessPeri
      (MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [Renta
      THEN INSERT INTO rcIssuedCar[RentalContract*C
      SELECTFROM 'a' [RentalContract]*'b' [Car]

      (TO MAINTAIN -(rentalExcessPeriod;renta
PICK a,b FROM rcIssuedCar~;('a' [RentalContract
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK
      THEN INSERT INTO carType[C
      SELECTFROM 'a' [Car]*

      (TO MAINTAIN -(renta
PICK a,b FROM carType~;('a
THEN ONE OF ONE NONEMPTY A
      THEN IN
      S

      (T
PICK a,
THEN IN
      S

      (T
(MAINTAINING -
NEW x:Amount;
      ALL of INSE
      SELE

      (TO M
INSERT

```


[illegible]

```

THEN ONE OF ONE NONEMPTY ALTE
THEN INSERT
SELE

(TO M
PICK a,b F
THEN INSERT
SELE

(TO M
(MAINAINING -(re
NEW x:Amount;
ALL of INSERT I
SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINAINING -(
(MAINAINING -(re
(MAINAINING -(rentalExc
(MAINAINING -(rentalExcessPeriod;re
NEW x:CarType;
ALL of INSERT INTO carType[Car*Car
SELECTFROM 'x'[Car]*'a'[Re

(TO MAINTAIN -(rentalExces
ONE OF ONE NONEMPTY ALTERNA
THEN INSERT I
SELECTF

(TO MAIN
PICK a,b FROM
THEN INSERT I
SELECTF

(TO MAIN
(MAINAINING -(renta
NEW x:Amount;
ALL of INSERT INTO
SELECTFROM

(TO MAINTAI
INSERT INTO
SELECTFROM

(TO MAINTAI
(MAINAINING -(ren

```

```

(MAINAINING -(renta
(MAINAINING -(rentalExcess
(MAINAINING -(rentalExcessPeriod;
(MAINAINING -(rentalExcessPeriod;re
(MAINAINING -(rentalExcessPeriod;rentalExc
(MAINAINING -(rentalExcessPeriod;rentalExcessPeri
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalC
PICK a,b FROM (ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excess
THEN BLOCK
(CANNOT CHANGE V[CompTariffedCharge*RentalContract] FROM Trigger e
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) /\
(MAINAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) /\ (renta
(MAINAINING -(rentalExcessPeriod~;rentalExcessPeriod) /\ I[Integer] FROM UNI rentalE

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalExcessPeriod[RentalContract*Integer] EXECUTE -- (E
ALL of ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM ((-rentalExcessPeriod /\ (rcDroppedOffDate;lastDate~ /\

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM compNrExcessDays;((-rentalExcessPeriod~ /\ compNrExces

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM ((-rentalExcessPeriod /\ (rcDroppedOffDate;lastDate~ /\

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM compNrExcessDays;((-rentalExcessPeriod~ /\ compNrExces

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM (lastDate;rcDroppedOffDate~ /\ firstDate;rcEndDate~);(

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM (-(((rentalExcessPeriod /\ -Delta);ctcNrOfDays~ /\ rcI

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract*Integer]
DELETE FROM rentalExcessPeriod[RentalContract*Integer]

```

```

SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;(
(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[Rental
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -(((rentalExcessPeriod /\ -Delta);ctcNrOfDays~ /\ rcIss

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[Rental
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \ (

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM ((-rentalExcessPeriod /\ (rcDroppedOffDate;lastDate~ /\ rcE

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);co
DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM compNrExcessDays;((-rentalExcessPeriod~ /\ compNrExcessDays

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);co
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM ((-rentalExcessPeriod /\ (rcDroppedOffDate;lastDate~ /\ rcE

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);co
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM compNrExcessDays;((-rentalExcessPeriod~ /\ compNrExcessDays

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);co
DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM (lastDate;rcDroppedOffDate~ /\ firstDate;rcEndDate~);((-ren

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);co
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExce
ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM -(((rentalExcessPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssued

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContr
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;(renta

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContr
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -(((rentalExcessPeriod /\ -Delta);ctcNrOfDays~ /\ rcIssuedC

(TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContr
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \ (renta

```

<-----End Derivation --

```

ON INSERT Delta IN excessTariffPerDay[CarType*Amount] EXECUTE    -- (ECA rule 57)
ONE OF INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exce

      (TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;e
INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcI

      (TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ 
INSERT INTO Isn{dety=Amount}
      SELECTFROM ((excessTariffPerDay \/ Delta)~;excessTariffPerDay /\ -I[Amou

      (TO MAINTAIN  -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM
INSERT INTO Isn{dety=CarType}
      SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

INSERT INTO Isn{dety=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINTAINING  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINTAINING  -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI exc
(MAINTAINING  -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT exce

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar

      (TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excess
INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssued

      (TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIss
INSERT INTO Isn{dety=Amount}
      SELECTFROM ((excessTariffPerDay \/ Delta)~;excessTariffPerDay /\ -I[Amount])

      (TO MAINTAIN  -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI
INSERT INTO Isn{dety=CarType}
      SELECTFROM (Delta;Delta~ /\ I[CarType]) - I[CarType]

INSERT INTO Isn{dety=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe

```

```

(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay)
(MAINAINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI excessTariffPerDay
(MAINAINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT excessTariffPerDay

<-----End Derivation --

```

```

ON DELETE Delta FROM excessTariffPerDay[CarType*Amount] EXECUTE -- (ECA rule 1)
ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(excessTariffPerDay~
      -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
      DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalExcessPeriod~
      -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
      DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(excessTariffPerDay~
      -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
      DELETE FROM Isn{detyp=CarType}
      SELECTFROM -((excessTariffPerDay /\ -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -I[CarType] \/ excessTariffPerDay;I[Amount];excessTariffPerDay~
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \ (
(MAINAINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI excessTariffPerDay
(MAINAINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT excessTariffPerDay

```

----- Derivation ----->

```

ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(excessTariffPerDay~
      -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
      DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalExcessPeriod~
      -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
      DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;(excessTariffPerDay~
      -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
      DELETE FROM Isn{detyp=CarType}
      SELECTFROM -((excessTariffPerDay /\ -Delta);(excessTariffPerDay /\ -Delta)~)

      (TO MAINTAIN -I[CarType] \/ excessTariffPerDay;I[Amount];excessTariffPerDay~
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \ (rentalExcessPeriod~
(MAINAINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI excessTariffPerDay
(MAINAINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT excessTariffPerDay

```

<-----End Derivation --

```

ON INSERT Delta IN rentalPenaltyCharge[RentalContract*Amount] EXECUTE -- (ECA
ALL of INSERT INTO rentalCharge[RentalContract*Amount]
    SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ ren

(TO MAINTAIN -(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ :
INSERT INTO Isn{dety=Amount}
    SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharg

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ :
(TO MAINTAIN -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FR
INSERT INTO Isn{dety=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalLocationPenaltyCharge;r
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[R
        THEN INSERT INTO rentalBasicCharge[RentalContract*Amount]
            SELECTFROM 'a'[RentalContract]*'b'[RentalContract*Amount]

            (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        PICK a,b FROM rentalBasicCharge~;('a'[RentalContract]*'b'[RentalContract*Amount]
        THEN INSERT INTO arg1[CompRentalCharge*Amount]
            SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract*Amount]

            (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        NEW x:Amount;
        ALL of INSERT INTO rentalBasicCharge[RentalContract*Amount]
            SELECTFROM 'a'[RentalContract]*'b'[RentalContract*Amount]

            (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        INSERT INTO arg1[CompRentalCharge*Amount]
            SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract*Amount]

            (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
            THEN INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[RentalContract*Amount]

                (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
            PICK a,b FROM rentalPenaltyCharge~;('a'[RentalContract]*'b'[RentalContract*Amount]
            THEN INSERT INTO arg2[CompRentalCharge*Amount]
                SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract*Amount]

```



```

ALL of INSERT INTO rentalCharge[RentalContract*Amount]
    SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo

(TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ renta
INSERT INTO Isn{detyp=Amount}
    SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIss
(TO MAINTAIN  -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FROM UN
INSERT INTO Isn{detyp=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalLocationPenaltyCharge;rental
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
        THEN INSERT INTO rentalBasicCharge[RentalContract*Amount]
            SELECTFROM 'a'[RentalContract]*'b'[Amount]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            PICK a,b FROM rentalBasicCharge~;('a'[RentalContract]*'b'[Amount]
            THEN INSERT INTO arg1[CompRentalCharge*Amount]
                SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            NEW x:Amount;
            ALL of INSERT INTO rentalBasicCharge[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge*Amount]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            INSERT INTO arg1[CompRentalCharge*Amount]
                SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract*Amount]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Amount]
            THEN INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[Amount]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            PICK a,b FROM rentalPenaltyCharge~;('a'[RentalContract]*'b'[Amount]
            THEN INSERT INTO arg2[CompRentalCharge*Amount]
                SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

            (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
            NEW x:Amount;

```

```

ALL of INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge*Amount]

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
INSERT INTO arg2[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[RentalLocationPenaltyCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[CompRentalCharge*Amount]
THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge*Amount]

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
PICK a,b FROM rentalLocationPenaltyCharge~ /\
THEN INSERT INTO arg3[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[RentalLocationPenaltyCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
NEW x:Amount;
ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge*Amount]

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
INSERT INTO arg3[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[RentalLocationPenaltyCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\
THEN BLOCK
(CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Trigger rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge~ /\
(MAINTAINING -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FROM UNI rentalPenaltyCharge[RentalContract*Amount]

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalPenaltyCharge[RentalContract*Amount] EXECUTE -- (E

```

```

ALL of ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM ((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
    SELECTFROM compTariffedCharge;((-rentalPenaltyCharge~ /\ compTariffedCharge)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
DELETE FROM rcIssuedCar[RentalContract*Car]
    SELECTFROM ((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
DELETE FROM carType[Car*CarType]
    SELECTFROM rcIssuedCar~;((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
DELETE FROM excessTariffPerDay[CarType*Amount]
    SELECTFROM carType~;rcIssuedCar~;((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
    SELECTFROM compTariffedCharge;((-rentalPenaltyCharge~ /\ compTariffedCharge)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
    SELECTFROM (ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excessTariffPerDay)

    (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType)
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay)
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM (-((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ (rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)

    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge)

    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
    SELECTFROM (-((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ (rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)

    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
    SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge)

    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
DELETE FROM rentalBasicCharge[RentalContract*Amount]
    SELECTFROM (-((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ (rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)

    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
DELETE FROM rentalBasicCharge[RentalContract*Amount]

```

```

SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge;
(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
DELETE FROM Isn{dety=RentalContract}
SELECTFROM -((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\
(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalLocationPenaltyCharge

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM ((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM compTariffedCharge;((-rentalPenaltyCharge~ /\ compTariffedCharge;ctcNrOfDays~ /\
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM ((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
DELETE FROM carType[Car*CarType]
SELECTFROM rcIssuedCar~;((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM carType~;rcIssuedCar~;((-rentalPenaltyCharge /\ (rentalExcessPeriod;ctcNrOfDays~ /\
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;((-rentalPenaltyCharge~ /\ compTariffedCharge;ctcNrOfDays~ /\
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM (ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excessTariffPerDay
(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM -((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ -DeleteFromRentalContract
(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge;

```

```

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ -Del

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicChar

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ -Del

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicChar

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ (rentalPenaltyCharge /\ -Delt

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
      (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ ren
(MAINTAINING  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena

```

<-----End Derivation --

```

ON INSERT Delta IN distpenalty[DistanceBetweenLocations*Amount] EXECUTE  -- (E
ONE OF INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM  ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~

      (TO MAINTAIN  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~
INSERT INTO Isn{dety=Amount}
      SELECTFROM  (rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~

      (TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~
INSERT INTO Isn{dety=Amount}
      SELECTFROM  ((distpenalty \/ Delta)~;distpenalty /\ -I[Amount]) \/ ((distpenalty

      (TO MAINTAIN  -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty
INSERT INTO Isn{dety=DistanceBetweenLocations}
      SELECTFROM  (Delta;Delta~ /\ I[DistanceBetweenLocations]) - I[DistanceBetweenLocations]

INSERT INTO Isn{dety=Amount}
      SELECTFROM  (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING  -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d

```

```

(MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::Dist
(MAINAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT d

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM ((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d

      (TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~
      INSERT INTO Isn{detyp=Amount}
      SELECTFROM (rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ r

      (TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /
      INSERT INTO Isn{detyp=Amount}
      SELECTFROM ((distpenalty \/ Delta)~;distpenalty /\ -I[Amount]) \/ ((distpenal

      (TO MAINTAIN -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::D
      INSERT INTO Isn{detyp=DistanceBetweenLocations}
      SELECTFROM (Delta;Delta~ /\ I[DistanceBetweenLocations]) - I[DistanceBetweenL

      INSERT INTO Isn{detyp=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

      (MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
      (MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
      (MAINAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::DistanceB
      (MAINAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT distpe

```

<-----End Derivation --

```

ON DELETE Delta FROM distpenalty[DistanceBetweenLocations*Amount] EXECUTE  --
ONE OF DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
      SELECTFROM (-(rentalLocationPenaltyCharge;(distpenalty /\ -Delta)~) /\ r

      (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbran
      DELETE FROM distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM (-(distpenalty /\ -Delta);rentalLocationPenaltyCharge~) /\ d

      (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbran
      DELETE FROM rcDropoffBranch[RentalContract*Branch]
      SELECTFROM (-(rentalLocationPenaltyCharge;(distpenalty /\ -Delta)~) /\ r

      (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbran
      DELETE FROM distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM (-(distpenalty /\ -Delta);rentalLocationPenaltyCharge~) /\ d

```

```

      (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
      DELETE FROM Isn{detyp=DistanceBetweenLocations}
      SELECTFROM -((distpenalty /\ -Delta);(distpenalty /\ -Delta)~) /\ I[DistanceBetweenLocations]

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpenalty
      (MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpenalty
      (MAINTAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::DistanceBetweenLocations
      (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT distpenalty

```

----- Derivation ----->

```

ONE OF DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
      SELECTFROM -(rentalLocationPenaltyCharge;(distpenalty /\ -Delta)~) /\ rcDropoffBranch;distbranch~

      (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
      DELETE FROM distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM -((distpenalty /\ -Delta);rentalLocationPenaltyCharge~) /\ distbranch;distbranch~

      (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
      DELETE FROM rcDropoffBranch[RentalContract*Branch]
      SELECTFROM -(rentalLocationPenaltyCharge;(distpenalty /\ -Delta)~) /\ rcDropoffBranch;distbranch~

      (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
      DELETE FROM distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM -((distpenalty /\ -Delta);rentalLocationPenaltyCharge~) /\ distbranch;distbranch~

      (TO MAINTAIN  -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
      DELETE FROM Isn{detyp=DistanceBetweenLocations}
      SELECTFROM -((distpenalty /\ -Delta);(distpenalty /\ -Delta)~) /\ I[DistanceBetweenLocations]

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpenalty
      (MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpenalty
      (MAINTAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::DistanceBetweenLocations
      (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT distpenalty

```

<-----End Derivation --

```

ON INSERT Delta IN rentalLocationPenaltyCharge[RentalContract*Amount] EXECUTE
ALL of INSERT INTO rentalCharge[RentalContract*Amount]
      SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge;arg3~)

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge;arg3~)
      INSERT INTO Isn{detyp=Amount}
      SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge;arg3~)

      (TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocationPenaltyCharge;arg3~)
      (TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge)
INSERT INTO Isn{dety=rentalContract}
SELECTFROM (Delta;Delta~ /\ I[rentalContract]) - I[rentalContract]

```

```

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalLocationPenaltyCharge;
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
THEN INSERT INTO rentalBasicCharge[rentalContract]
SELECTFROM 'a'[rentalContract]*'b'

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
PICK a,b FROM rentalBasicCharge~;('a'[rentalContract])
THEN INSERT INTO arg1[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
NEW x:Amount;
ALL of INSERT INTO rentalBasicCharge[rentalContract]
SELECTFROM 'a'[rentalContract]*'b'[CompRentalCharge]

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
INSERT INTO arg1[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[rentalContract]

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[rentalContract])
THEN INSERT INTO rentalPenaltyCharge[rentalContract]
SELECTFROM 'a'[rentalContract]*'b'[CompRentalCharge]

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
PICK a,b FROM rentalPenaltyCharge~;('a'[rentalContract])
THEN INSERT INTO arg2[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[rentalContract]

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
NEW x:Amount;
ALL of INSERT INTO rentalPenaltyCharge[rentalContract]
SELECTFROM 'a'[rentalContract]*'b'[CompRentalCharge]

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
INSERT INTO arg2[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[rentalContract]

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)

```



```

(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocat
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
THEN INSERT INTO rentalLocationPenaltyCh
SELECTFROM 'a'[RentalContract]*'b'

(TO MAINTAIN -(rentalLocationPenal
PICK a,b FROM rentalLocationPenaltyCharg
THEN INSERT INTO arg3[CompRentalCharge*Am
SELECTFROM 'b'[CompRentalCharge]*'.

(TO MAINTAIN -(rentalLocationPenal
(MAINTAINING -(rentalLocationPenaltyCharge;rent
NEW x:Amount;
ALL of INSERT INTO rentalLocationPenaltyCharg
SELECTFROM 'a'[RentalContract]*'b'[Con

(TO MAINTAIN -(rentalLocationPenaltyC
INSERT INTO arg3[CompRentalCharge*Amou
SELECTFROM 'b'[CompRentalCharge]*'a'

(TO MAINTAIN -(rentalLocationPenaltyC
(MAINTAINING -(rentalLocationPenaltyCharge;re
(MAINTAINING -(rentalLocationPenaltyCharge;rent
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocat
PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge
THEN BLOCK
(CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Trigg
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rental
(MAINTAINING -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge) \/ I[Am

```

----- Derivation ----->

```

ALL of INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ renta
INSERT INTO Isn{detyp=Amount}
SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\
(TO MAINTAIN -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge) \/ I
INSERT INTO Isn{detyp=RentalContract}

```

```
SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]
```

```

ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rentalLocationPenaltyCharge;(rentalLocationPenaltyCharge;
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
    THEN INSERT INTO rentalBasicCharge[RentalContract]
    SELECTFROM 'a'[RentalContract]*'b'[Amou

```

```

      (TO MAINTAIN -(rentalLocationPenaltyCha
PICK a,b FROM rentalBasicCharge~;('a' [RentalC
THEN INSERT INTO arg1[CompRentalCharge*Amount
      SELECTFROM 'b' [CompRentalCharge]*'a' [Am

```

```

      (TO MAINTAIN -(rentalLocationPenaltyCha
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLoc
NEW x:Amount;

```

```
ALL of INSERT INTO rentalBasicCharge[RentalContract]
SELECTFROM 'a' [RentalContract]*'b' [CompRen
```

```
(TO MAINTAIN - (rentalLocationPenaltyCharge
INSERT INTO arg1[CompRentalCharge*Amount]
SELECTFROM 'b' [CompRentalCharge]*'a' [Renta
```

```

      (TO MAINTAIN -(rentalLocationPenaltyCharge
      (MAINTAINING -(rentalLocationPenaltyCharge;rentalL
      (MAINTAINING -(rentalLocationPenaltyCharge;rentalLoc
      (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPe
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
      THEN INSERT INTO rentalPenaltyCharge[RentalCo
      SELECTFROM 'a'[RentalContract]*'b'[Amou

```

```

      (TO MAINTAIN -(rentalLocationPenaltyCha
PICK a,b FROM rentalPenaltyCharge-;('a'[Renta
THEN INSERT INTO arg2[CompRentalCharge*Amount
      SELECTFROM 'b'[CompRentalCharge]*'a'[Am

```

```

      (TO MAINTAIN -(rentalLocationPenaltyCha
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLoc
NEW x:Amount;

```

```
ALL of INSERT INTO rentalPenaltyCharge[RentalContr
SELECTFROM 'a'[RentalContract]*'b'[CompRen
```

```
(TO MAINTAIN  -(rentalLocationPenaltyCharge
INSERT INTO  arg2[CompRentalCharge*Amount]
SELECTFROM  'b'[CompRentalCharge]*'a'[Renta
```

```

      (TO MAINTAIN -(rentalLocationPenaltyCharge
      (MAINTAINING -(rentalLocationPenaltyCharge;rentalL
      (MAINTAINING -(rentalLocationPenaltyCharge;rentalLoc
      (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPe
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta

```

```

THEN INSERT INTO rentalLocationPenaltyCharge[
    SELECTFROM 'a'[RentalContract]*'b'[Amou

    (TO MAINTAIN -(rentalLocationPenaltyCha
PICK a,b FROM rentalLocationPenaltyCharge~;('
THEN INSERT INTO arg3[CompRentalCharge*Amount
    SELECTFROM 'b'[CompRentalCharge]*'a'[Am

    (TO MAINTAIN -(rentalLocationPenaltyCha
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLoc
NEW x:Amount;
    ALL of INSERT INTO rentalLocationPenaltyCharge[Ren
        SELECTFROM 'a'[RentalContract]*'b'[CompRen

    (TO MAINTAIN -(rentalLocationPenaltyCharge
    INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[Renta

    (TO MAINTAIN -(rentalLocationPenaltyCharge
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalL
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLoc
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPe
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCh
PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\
THEN BLOCK
    (CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Trigger ren
    (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ ren
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena
(MAINTAINING -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge) \/ I[Amount]

```

<-----End Derivation --

```

ON DELETE Delta FROM rentalLocationPenaltyCharge[RentalContract*Amount] EXECUTE
ALL of ONE OF DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
    SELECTFROM ((-rentalLocationPenaltyCharge /\ (rcDroppedOffBranch;

    (TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
    SELECTFROM distpenalty;((-rentalLocationPenaltyCharge~ /\ distpen

    (TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch
DELETE FROM rcDropoffBranch[RentalContract*Branch]
    SELECTFROM ((-rentalLocationPenaltyCharge /\ (rcDroppedOffBranch;

    (TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch

```

```

DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;((-rentalLocationPenaltyCharge~ /\ distpen

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch
DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM (distbranch;rcDroppedOffBranch~ /\ distbranch;rcDropof

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbra
ONE OF DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
SELECTFROM (-((rentalLocationPenaltyCharge /\ -Delta);distpenalty

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM (-((distpenalty;(rentalLocationPenaltyCharge~ /\ -Delta

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM (-((rentalLocationPenaltyCharge /\ -Delta);distpenalty

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM (-((distpenalty;(rentalLocationPenaltyCharge~ /\ -Delta

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbran
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (-((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (- (V[RentalContract*CompRentalCharge]; (arg1;rentalBasi

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (-((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (- (V[RentalContract*CompRentalCharge]; (arg1;rentalBasi

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (-((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (- (V[RentalContract*CompRentalCharge]; (arg1;rentalBasi

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC

```

```

DELETE FROM Isn{dety=RentContract}
SELECTFROM -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyC
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ renta

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
SELECTFROM ((-rentalLocationPenaltyCharge /\ (rcDroppedOffBranch;distb

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;dist
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;((-rentalLocationPenaltyCharge~ /\ distpenalty~

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;dist
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM ((-rentalLocationPenaltyCharge /\ (rcDroppedOffBranch;distb

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;dist
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;((-rentalLocationPenaltyCharge~ /\ distpenalty~

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;dist
DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM (distbranch;rcDroppedOffBranch~ /\ distbranch;rcDropoffBranch

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;dist
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
ONE OF DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
SELECTFROM (-((rentalLocationPenaltyCharge /\ -Delta);distpenalty~) /\

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distb
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM (-((distpenalty;(rentalLocationPenaltyCharge~ /\ -Delta~)) /

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distb
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM (-((rentalLocationPenaltyCharge /\ -Delta);distpenalty~) /\

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distb
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM (-((distpenalty;(rentalLocationPenaltyCharge~ /\ -Delta~)) /

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distb

```

```

(MAINAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicChar

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicChar

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicChar

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\

      (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
      (MAINAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ ren
(MAINAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena

```

<-----End Derivation --

```

ON INSERT Delta IN maxRentalDuration[CarRentalCompany*MaxRentalDuration] EXECUTE
ALL of INSERT INTO rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (rcPickupBranch;branchOf;maxRentalDuration /\ -rcMaxRentalDur

      (TO MAINTAIN -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRental
INSERT INTO Isn{detyp=MaxRentalDuration}
      SELECTFROM (rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuri

      (TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDur
INSERT INTO Isn{detyp=CarRentalCompany}
      SELECTFROM (Delta;Delta~ /\ I[CarRentalCompany]) - I[CarRentalCompany]

```

```
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration
```

----- Derivation ----->

```
ALL of INSERT INTO rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (rcPickupBranch;branchOf;maxRentalDuration /\ -rcMaxRentalDuration

      (TO MAINTAIN -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDurat
      INSERT INTO Isn{dety=MaxRentalDuration}
      SELECTFROM (rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration /\

      (TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration
      INSERT INTO Isn{dety=CarRentalCompany}
      SELECTFROM (Delta;Delta~ /\ I[CarRentalCompany]) - I[CarRentalCompany]

      (MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration FROM
      (MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration FROM
```

<-----End Derivation --

```
ON INSERT Delta IN rcMaxRentalDuration[RentalContract*MaxRentalDuration] EXECUTE
ALL of INSERT INTO Isn{dety=MaxRentalDuration}
      SELECTFROM ((rcMaxRentalDuration \/ Delta)~;rcPickupBranch;branchOf;maxR

      (TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDur
      (TO MAINTAIN -(rcMaxRentalDuration~;rcMaxRentalDuration) \/ I[MaxRentalD
      INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM (rcStartDate~;rcMaxRentalDuration;(rcMaxRentalDuration \/ Del

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcE
      INSERT INTO Isn{dety=RentalContract}
      SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

      ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;(r
      THEN INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration
      PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;(rcMaxRent
      THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
      THEN INSERT INTO dateIntervalCompTrigger
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN -(rcMaxRentalDuration
      PICK a,b FROM dateIntervalCompTrigger~;(
      THEN INSERT INTO rcEndDate[RentalContract
```

```

SELECTFROM 'b' [RentalContract]*'a'

        (TO MAINTAIN -(rcMaxRentalDuration
(MAINTEINING -(rcMaxRentalDuration;rcMaxRentalD
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Da
                SELECTFROM 'a' [Date]*'b' [RentalContra

        (TO MAINTAIN -(rcMaxRentalDuration;rc
INSERT INTO rcEndDate[RentalContract*D
                SELECTFROM 'b' [RentalContract]*'a' [Da

        (TO MAINTAIN -(rcMaxRentalDuration;rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRenta
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalD
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration
(MAINTEINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDa
NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date]
                SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration \/

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x' [Date
                THEN INSERT INTO dateIntervalCompTrigger[Date*
                        SELECTFROM 'a' [Date]*'b' [Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rc
PICK a,b FROM dateIntervalCompTrigger~;('x'
        THEN INSERT INTO rcEndDate[RentalContract*D
                SELECTFROM 'b' [RentalContract]*'a' [Da

        (TO MAINTAIN -(rcMaxRentalDuration;rc
(MAINTEINING -(rcMaxRentalDuration;rcMaxRentalDura
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date*
                SELECTFROM 'x' [Date]*((rcMaxRentalDura

        (TO MAINTAIN -(rcMaxRentalDuration;rcMax
INSERT INTO rcEndDate[RentalContract*Date]
                SELECTFROM (((rcMaxRentalDuration \/ Del

        (TO MAINTAIN -(rcMaxRentalDuration;rcMax
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDu
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEnd
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDa
(MAINTEINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEn
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcStartDate~;rcMaxRenta
        THEN INSERT INTO dateIntervalCompTrigger[Date*Date]

```



```

SELECTFROM 'a' [Date]*'b' [Date]

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
PICK a,b FROM dateIntervalCompTrigger~;((rcStartDate~;rcMaxRentalDuration)
THEN INSERT INTO rcEndDate[RentalContract*Date]
SELECTFROM 'b' [RentalContract]*'a' [Date]

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
NEW x:Date;
ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
SELECTFROM ((rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
INSERT INTO rcEndDate[RentalContract*Date]
SELECTFROM ((rcMaxRentalDuration \ / Delta);rcMaxRentalDuration)

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;rcMaxRentalDuration)
THEN INSERT INTO rcStartDate[RentalContract*Date]
SELECTFROM 'a' [RentalContract]*'b' [Date]

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration)
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;rcMaxRentalDuration)
THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
SELECTFROM 'a' [Date]*'b' [Date]

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate)
NEW x:Date;
ALL of INSERT INTO rcStartDate[RentalContract*Date]
SELECTFROM ((rcMaxRentalDuration;rcMaxRentalDuration \ / Delta)

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate)
INSERT INTO dateIntervalCompTrigger[Date*Date]
SELECTFROM 'x' [Date]*((rcMaxRentalDuration;rcMaxRentalDuration)

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate \ / rcEndDate)
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \ / rcMaxRentalDuration)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ \ / rcEndDate;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ \ / rcEndDate;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ \ / rcEndDate;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ \ / rcEndDate;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ \ / rcEndDate;rcEndDate)
(MAINTAINING -(rcMaxRentalDuration~;rcMaxRentalDuration) \ / I[MaxRentalDuration]

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{detyp=MaxRentalDuration}
    SELECTFROM ((rcMaxRentalDuration \ / Delta)~;rcPickupBranch;branchOf;maxRentalDuration)

(TO MAINTAIN  -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration)
(TO MAINTAIN  -(rcMaxRentalDuration~;rcMaxRentalDuration) \ / I[MaxRentalDuration]
INSERT INTO dateIntervalCompTrigger[Date*Date]
    SELECTFROM (rcStartDate~;rcMaxRentalDuration;(rcMaxRentalDuration \ / Delta)~;

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate)
INSERT INTO Isn{detyp=RentalContract}
    SELECTFROM (Delta;Delta~ /\ I[RentalContract]) - I[RentalContract]

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;(rcMaxRentalDuration~ /\
    THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;(rcMaxRentalDuration~ /\
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Date]
    THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
PICK a,b FROM dateIntervalCompTrigger~;('a'[Date]
    THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
NEW x:Date;
    ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[RentalContract]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcMaxRentalDuration~ /\
NEW x:Date;
    ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;(rcMaxRentalDuration \ / Delta)~;rcPickupBranch;branchOf;maxRentalDuration)

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcMaxRentalDuration~ /\

```

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Date]*((
    THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
PICK a,b FROM dateIntervalCompTrigger~;'x'[Date]
THEN INSERT INTO rcEndDate[RentalContract*Date]
    SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
NEW x:Date;
    ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'x'[Date]*((rcMaxRentalDuration;(r

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRenta
INSERT INTO rcEndDate[RentalContract*Date]
    SELECTFROM ((rcMaxRentalDuration /\ Delta);r

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRenta
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuratio
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcE
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcStartDate~;rcMaxRentalDur
    THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRenta
PICK a,b FROM dateIntervalCompTrigger~;((rcStartDate~;rcMaxRenta
THEN INSERT INTO rcEndDate[RentalContract*Date]
    SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRenta
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
NEW x:Date;
    ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM ((rcStartDate~;rcMaxRentalDuration;(rcMaxRentalDur

        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDu
INSERT INTO rcEndDate[RentalContract*Date]
    SELECTFROM ((rcMaxRentalDuration /\ Delta);rcMaxRentalDurati

        (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDu
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\
        (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStar
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((rcMaxRentalDuration;(rcMaxR

```

```

THEN INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rc
PICK a,b FROM rcStartDate~;((rcMaxRentalDuration;(rcMaxRentalDur
THEN INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'a'[Date]*'b'[Date]

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
NEW x:Date;
  ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM ((rcMaxRentalDuration;(rcMaxRentalDuration /\ Delt
      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEnd
INSERT INTO dateIntervalCompTrigger[Date*Date]
      SELECTFROM 'x'[Date]*((rcMaxRentalDuration;(rcMaxRentalDurati
      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEnd
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rc
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEndDate
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration FROM
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration~;rcMaxRentalDuration) /\ I[MaxRentalDuration] FROM

```

<-----End Derivation --

```

ON DELETE Delta FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration] EXECU
ONE OF DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM ((-rcMaxRentalDuration /\ rcPickupBranch;branchOf;maxRentalDur

      (TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRental
DELETE FROM branchOf[Branch*CarRentalCompany]
      SELECTFROM rcPickupBranch~;((-rcMaxRentalDuration /\ rcPickupBranch;bran

      (TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRental
DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
      SELECTFROM branchOf~;rcPickupBranch~;((-rcMaxRentalDuration /\ rcPickupB

      (TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRental
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration

```

----- Derivation ----->

```

ONE OF DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM ((-rcMaxRentalDuration /\ rcPickupBranch;branchOf;maxRentalDuration)
      /\ rcMaxRentalDuration) /\ rcMaxRentalDuration
      (TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration)
DELETE FROM branchOf[Branch*CarRentalCompany]
      SELECTFROM rcPickupBranch~;((-rcMaxRentalDuration /\ rcPickupBranch;branchOf;
      /\ rcMaxRentalDuration) /\ rcMaxRentalDuration)
      (TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration)
DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
      SELECTFROM branchOf~;rcPickupBranch~;((-rcMaxRentalDuration /\ rcPickupBranch;
      /\ rcMaxRentalDuration) /\ rcMaxRentalDuration)
      (TO MAINTAIN  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration)
      (MAINTAINING  -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration FROM

```

<-----End Derivation --

```

ON INSERT Delta IN dateIntervalCompTrigger[Date*Date] EXECUTE    -- (ECA rule 69)
INSERT INTO Isn{dety=Date}
      SELECTFROM (Delta;Delta~ /\ I[Date]) - I[Date] /\ (Delta~;Delta /\ I[Date]) - I[Date]

```

----- Derivation ----->

```

INSERT INTO Isn{dety=Date}
      SELECTFROM (Delta;Delta~ /\ I[Date]) - I[Date] /\ (Delta~;Delta /\ I[Date]) - I[Date]

```

<-----End Derivation --

```

ON DELETE Delta FROM dateIntervalCompTrigger[Date*Date] EXECUTE    -- (ECA rule 70)
ALL of ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (-rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcEndDate)
      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate)
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM (-rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~);rcStartDate)
      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate)
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM (-rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcEndDate)
      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate)
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM (-rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~);rcStartDate)

```

```

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  -(rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcE

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~);rcS

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
DELETE FROM Isn{dety=RentalContract}
SELECTFROM  -(rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcE

(TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndD
(MAINTAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcE
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  rcMaxRentalDuration;rcMaxRentalDuration~;-(rcEndDate;

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM  rcStartDate;(-(dateIntervalCompTrigger /\ -Delta);rcE

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM  -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  rcEndDate;rcEndDate~;-(rcEndDate;(dateIntervalCompTri

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM  rcStartDate;(-(dateIntervalCompTrigger /\ -Delta);rcE

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  rcStartDate;rcStartDate~;-(rcEndDate;(dateIntervalComp

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  rcStartDate;(-(dateIntervalCompTrigger /\ -Delta);rcE

(TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDurati
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM  -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\

```

```

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\ .

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      (MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ r
      ONE OF DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate;((-dateIntervalCompTrigger~ /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM rcEndDate;((-dateIntervalCompTrigger /\ rcEndDate~;rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcEndDate;rcEndDate~;rcEndDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcEndDate;((-dateIntervalCompTrigger /\ rcEndDate~;rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcEndDate;rcEndDate~;rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcStartDate;rcStartDate~;rcEndDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)
      DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcEndDate;((-dateIntervalCompTrigger /\ rcEndDate~;rcStartDate~)

      (TO MAINTAIN  -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~)

```



```

SELECTFROM -(rcStartDate;(dateIntervalCompTrigger /\ -Delta)) /\ :
      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEnd
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEnd
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEnd
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEnd
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEnd

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM -(rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcEndDat

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~);rcStartD

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcEndDat

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~);rcStartD

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -(rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcEndDat

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~);rcStartD

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM -(rcStartDate;(dateIntervalCompTrigger /\ -Delta);rcEndDat

      (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;r
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEnd
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;(-(rcEndDate;(date

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM rcStartDate;(-(dateIntervalCompTrigger /\ -Delta);rcEndDat

      (TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /

```

```

DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM (-(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\ rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcEndDate;rcEndDate~;(-(rcEndDate;(dateIntervalCompTrigger~

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcStartDate;(-(dateIntervalCompTrigger /\ -Delta);rcEndDat

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM (-(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\ rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;rcStartDate~;(-(rcEndDate;(dateIntervalCompTrig

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;(-(dateIntervalCompTrigger /\ -Delta);rcEndDat

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM (-(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\ rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM -(rcEndDate;(dateIntervalCompTrigger~ /\ -Delta~)) /\ rcMax

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcStar
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate;((-dateI

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rc
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~;rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rc
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM rcEndDate;((-dateIntervalCompTrigger~ /\ rcEndDate~;rcMaxRe

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rc
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;rcStartDate;((-dat

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rc
DELETE FROM rcStartDate[RentalContract*Date]

```

```

SELECTFROM rcEndDate;rcEndDate~;rcEndDate;((-dateIntervalCompTrigger~

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~;rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcEndDate;((-dateIntervalCompTrigger~ /\ rcEndDate~;rcMaxRe

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcEndDate;rcEndDate~;rcStartDate;((-dateIntervalCompTrigger

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;rcStartDate~;rcEndDate;((-dateIntervalCompTrigg

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~;rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcEndDate;((-dateIntervalCompTrigger~ /\ rcEndDate~;rcMaxRe

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcStartDate;rcStartDate~;rcStartDate;((-dateIntervalCompTri

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcEndDate;((-dateIntervalCompTrigger~ /\ rcEndDate~;rcMaxRe

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcStartDate;((-dateIntervalCompTrigger /\ rcStartDate~;rcMa

(TO MAINTAIN -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;r
(MAINTAINING -(rcStartDate~;rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate
ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM (-(rcStartDate;(dateIntervalCompTrigger /\ -Delta)) /\ rcMa

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM rcEndDate;(-(dateIntervalCompTrigger~ /\ -Delta~);rcStartD

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcMaxRentalDuration;rcMaxRentalDuration~;(-(rcStartDate;(da

```

```

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  -(rcStartDate;(dateIntervalCompTrigger /\ -Delta)) /\ rcMa

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  rcEndDate;(-(dateIntervalCompTrigger~ /\ -Delta~);rcStartD

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  rcEndDate;rcEndDate~;(-(rcStartDate;(dateIntervalCompTrigge

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(rcStartDate;(dateIntervalCompTrigger /\ -Delta)) /\ rcMa

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  rcEndDate;(-(dateIntervalCompTrigger~ /\ -Delta~);rcStartD

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  rcStartDate;rcStartDate~;(-(rcStartDate;(dateIntervalCompTr

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM  -(rcStartDate;(dateIntervalCompTrigger /\ -Delta)) /\ rcMax

      (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ r
      (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~;rcEndDate /\ rcEndDate
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc

```

<-----End Derivation --

```

ON INSERT Delta IN arg1[CompRentalCharge*Amount] EXECUTE  -- (ECA rule 71)
ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
      SELECTFROM  (rentalBasicCharge;(arg1 \/ Delta)~ /\ rentalPenaltyCharge;ar

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ :
INSERT INTO Isn{detyp=Amount}
      SELECTFROM  rentalCharge~;(rentalBasicCharge;(arg1 \/ Delta)~ /\ rentalPe

      (TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
INSERT INTO Isn{detyp=CompRentalCharge}

```

```

SELECTFROM (arg3;arg3~ /\ arg2;arg2~ /\ arg1;(arg1 \/ Delta)~ /\ -I[CompRentalCharge*Amount])
(TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge*Amount])
INSERT INTO Isn{dety=Amount}
SELECTFROM ((arg1 \/ Delta)~;arg1 /\ -I[Amount]) \/ ((arg1 \/ Delta)~;Delta /\ -I[Amount])

(TO MAINTAIN -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
INSERT INTO Isn{dety=CompRentalCharge}
SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

INSERT INTO Isn{dety=Amount}
SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocation;arg2~ /\ arg1) /\ -I[CompRentalCharge*Amount])
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocation;arg2~ /\ arg1) /\ -I[CompRentalCharge*Amount])
(MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTAINING -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*Amount)

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM (rentalBasicCharge;(arg1 \/ Delta)~ /\ rentalPenaltyCharge;arg2~ /\ arg1)

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ arg1) /\ -I[CompRentalCharge*Amount])
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalCharge~;(rentalBasicCharge;(arg1 \/ Delta)~ /\ rentalPenaltyCharge;arg2~ /\ arg1)

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ arg1) /\ -I[CompRentalCharge*Amount])
INSERT INTO Isn{dety=CompRentalCharge}
SELECTFROM (arg3;arg3~ /\ arg2;arg2~ /\ arg1;(arg1 \/ Delta)~ /\ -I[CompRentalCharge*Amount])

(TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge*Amount])
INSERT INTO Isn{dety=Amount}
SELECTFROM ((arg1 \/ Delta)~;arg1 /\ -I[Amount]) \/ ((arg1 \/ Delta)~;Delta /\ -I[Amount])

(TO MAINTAIN -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
INSERT INTO Isn{dety=CompRentalCharge}
SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

INSERT INTO Isn{dety=Amount}
SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocation;arg2~ /\ arg1) /\ -I[CompRentalCharge*Amount])
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocation;arg2~ /\ arg1) /\ -I[CompRentalCharge*Amount])
(MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTAINING -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*Amount)

```

<-----End Derivation --

```

ON DELETE Delta FROM arg1[CompRentalCharge*Amount] EXECUTE    -- (ECA rule 72)
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];((arg1 /\ -Delta);rentalLocationPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];((arg1 /\ -Delta);rentalPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];((arg1 /\ -Delta);rentalBasicCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM Isn{dety=RentalContract}
      SELECTFROM (-(rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM Isn{dety=CompRentalCharge}
      SELECTFROM (-(arg1 /\ -Delta);(arg1 /\ -Delta)~) /\ I[CompRentalCharge]

      (TO MAINTAIN  -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM UNI arg1:
      (MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      (MAINTAINING  -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
      (MAINTAINING  -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*Amount)

```

----- Derivation ----->

```

ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg1)

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPenaltyCharge;arg1)
      DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM (-(V[RentalContract*CompRentalCharge];((arg1 /\ -Delta);rentalBasicCharge;arg1)

```

```

(TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM  (-((rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM  (- (V[RentalContract*CompRentalCharge];((arg1 /\ -Delta);rentalBasi

(TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM  (-((rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg

(TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM  (- (V[RentalContract*CompRentalCharge];((arg1 /\ -Delta);rentalBasi

(TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM  -((rentalBasicCharge;(arg1 /\ -Delta)~ /\ rentalPenaltyCharge;arg2

(TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM Isn{detyp=CompRentalCharge}
SELECTFROM  -((arg1 /\ -Delta);(arg1 /\ -Delta)~) /\ I[CompRentalCharge]

(TO MAINTAIN  -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM UNI arg1::Comp
(MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena
(MAINTAINING  -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTAINING  -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*Amount

```

<-----End Derivation --

```

ON INSERT Delta IN arg2[CompRentalCharge*Amount] EXECUTE      -- (ECA rule 73)
ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM  (rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 \/ Delta)~)

(TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ :
INSERT INTO Isn{detyp=Amount}
SELECTFROM  rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
INSERT INTO Isn{detyp=CompRentalCharge}
SELECTFROM  (arg3;arg3~ /\ arg2;(arg2 \/ Delta)~ /\ arg1;arg1~ /\ -I[Comp

(TO MAINTAIN  -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCh
INSERT INTO Isn{detyp=Amount}
SELECTFROM  ((arg2 \/ Delta)~;arg2 /\ -I[Amount]) \/ ((arg2 \/ Delta)~;De

```

```

      (TO MAINTAIN  -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*
      INSERT INTO Isn{detyp=CompRentalCharge}
      SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

      INSERT INTO Isn{detyp=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
      (MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FR
      (MAINTAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
      (MAINTAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
      SELECTFROM (rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 \/ Delta)~ /\

      (TO MAINTAIN  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ renta
      INSERT INTO Isn{detyp=Amount}
      SELECTFROM rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg

      (TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
      INSERT INTO Isn{detyp=CompRentalCharge}
      SELECTFROM (arg3;arg3~ /\ arg2;(arg2 \/ Delta)~ /\ arg1;arg1~ /\ -I[CompRenta

      (TO MAINTAIN  -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge]
      INSERT INTO Isn{detyp=Amount}
      SELECTFROM ((arg2 \/ Delta)~;arg2 /\ -I[Amount]) \/ ((arg2 \/ Delta)~;Delta /\

      (TO MAINTAIN  -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount
      INSERT INTO Isn{detyp=CompRentalCharge}
      SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

      INSERT INTO Isn{detyp=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
      (MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FROM Un
      (MAINTAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
      (MAINTAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*Amount

```

<-----End Derivation --

```

ON DELETE Delta FROM arg2[CompRentalCharge*Amount] EXECUTE      -- (ECA rule 74)
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]

```



```

SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -I
(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -I

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -I

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM Isn{dety=RentalContract}
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -D

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM Isn{dety=CompRentalCharge}
SELECTFROM (-(arg2 /\ -Delta);(arg2 /\ -Delta)~) /\ I[CompRentalCharge]

(TO MAINTAIN -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM UNI arg2:
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ renta
(MAINTAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*

```

----- Derivation ----->

```

ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -Delta

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -Delta

```

```

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -Delta

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;(arg2 /\ -Delta)

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM Isn{detyp=CompRentalCharge}
SELECTFROM -((arg2 /\ -Delta);(arg2 /\ -Delta)~) /\ I[CompRentalCharge]

(TO MAINTAIN -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM UNI arg2::Comp
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena
(MAINTAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*Amount

```

<-----End Derivation --

```

ON INSERT Delta IN arg3[CompRentalCharge*Amount] EXECUTE -- (ECA rule 75)
ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM (rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalCh

(TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ :
INSERT INTO Isn{detyp=Amount}
SELECTFROM rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
INSERT INTO Isn{detyp=CompRentalCharge}
SELECTFROM (arg3;(arg3 \/ Delta)~ /\ arg2;arg2~ /\ arg1;arg1~ /\ -I[Comp

(TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCh
INSERT INTO Isn{detyp=Amount}
SELECTFROM ((arg3 \/ Delta)~;arg3 /\ -I[Amount]) \/ ((arg3 \/ Delta)~;De

(TO MAINTAIN -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*
INSERT INTO Isn{detyp=CompRentalCharge}
SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

INSERT INTO Isn{detyp=Amount}

```

```

SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FR
(MAINAINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
    SELECTFROM (rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLoc

    (TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ renta
    INSERT INTO Isn{detyp=Amount}
    SELECTFROM rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2

    (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
    INSERT INTO Isn{detyp=CompRentalCharge}
    SELECTFROM (arg3;(arg3 \/ Delta)~ /\ arg2;arg2~ /\ arg1;arg1~ /\ -I[CompRenta

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge]
    INSERT INTO Isn{detyp=Amount}
    SELECTFROM ((arg3 \/ Delta)~;arg3 /\ -I[Amount]) \/ ((arg3 \/ Delta)~;Delta /

    (TO MAINTAIN -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amoun
    INSERT INTO Isn{detyp=CompRentalCharge}
    SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

    INSERT INTO Isn{detyp=Amount}
    SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
(MAINAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
(MAINAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FROM Un
(MAINAINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*Amoun

```

<-----End Derivation --

```

ON DELETE Delta FROM arg3[CompRentalCharge*Amount] EXECUTE -- (ECA rule 76)
ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM (-((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ r

    (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
    DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
    SELECTFROM -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge

```

```

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ r

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ r

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ re

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~
DELETE FROM Isn{dety=CompRentalCharge}
      SELECTFROM  -((arg3 /\ -Delta);(arg3 /\ -Delta)~) /\ I[CompRentalCharge]

      (TO MAINTAIN  -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM UNI arg3:
(MAINTAINING  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ renta
(MAINTAINING  -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINTAINING  -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*

```

----- Derivation ----->

```

ONE OF DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rental

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge~ /\

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rental

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  -(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge~ /\

      (TO MAINTAIN  -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re

```

```

DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rental

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (-(V[RentalContract*CompRentalCharge];(arg1;rentalBasicCharge~ /\

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM Isn{dety=RentContract}
SELECTFROM (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalL

(TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ re
DELETE FROM Isn{dety=CompRentalCharge}
SELECTFROM (-(arg3 /\ -Delta);(arg3 /\ -Delta)~) /\ I[CompRentalCharge]

(TO MAINTAIN -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM UNI arg3::Comp
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena
(MAINTAINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*Amount

```

<-----End Derivation --

```

ON INSERT Delta IN compRentalCharge[CompRentalCharge*Amount] EXECUTE -- (ECA
ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ ren

(TO MAINTAIN (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ :
INSERT INTO Isn{dety=Amount}
SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharg

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
INSERT INTO Isn{dety=Amount}
SELECTFROM ((compRentalCharge \/ Delta)~;compRentalCharge /\ -I[Amount])

(TO MAINTAIN -(compRentalCharge~;I[CompRentalCharge];compRentalCharge) \
INSERT INTO Isn{dety=CompRentalCharge}
SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

INSERT INTO Isn{dety=Amount}
SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINTAINING (-(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINTAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Comp
(MAINTAINING -(compRentalCharge~;compRentalCharge) \/ I[Amount] FROM UNI compRen

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalCharge[RentalContract*Amount]
      SELECTFROM ((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio

      (TO MAINTAIN -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
      INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio

      (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
      INSERT INTO Isn{dety=Amount}
      SELECTFROM ((compRentalCharge \/ Delta)~;compRentalCharge /\ -I[Amount]) \/ (rentalCharge~;

      (TO MAINTAIN -(compRentalCharge~;I[CompRentalCharge];compRentalCharge) \/ I[CompRentalCharge]
      INSERT INTO Isn{dety=CompRentalCharge}
      SELECTFROM (Delta;Delta~ /\ I[CompRentalCharge]) - I[CompRentalCharge]

      INSERT INTO Isn{dety=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocation;rentalContract*Amount)
      (MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocation;rentalContract*Amount)
      (MAINTAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Compute
      (MAINTAINING -(compRentalCharge~;compRentalCharge) \/ I[Amount] FROM UNI compRentalCharge

```

<-----End Derivation --

```

ON DELETE Delta FROM compRentalCharge[CompRentalCharge*Amount] EXECUTE      -- (ECA rule 78)
DELETE FROM Isn{dety=CompRentalCharge}
      SELECTFROM -((compRentalCharge /\ -Delta);(compRentalCharge /\ -Delta)~) /\ I[CompRentalCharge]

      (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Compute

```

----- Derivation ----->

```

DELETE FROM Isn{dety=CompRentalCharge}
      SELECTFROM -((compRentalCharge /\ -Delta);(compRentalCharge /\ -Delta)~) /\ I[CompRentalCharge]

      (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Compute

```

<-----End Derivation --

```

ON INSERT Delta IN earliestDate[CompNrDays*Date] EXECUTE      -- (ECA rule 79)
ONE OF INSERT INTO rentalPeriod[RentalContract*Integer]
      SELECTFROM (rcStartDate;(earliestDate \/ Delta)~ /\ rcDroppedOffDate;lat

```

```

(TO MAINTAIN -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
INSERT INTO Isn{dety=Integer}
SELECTFROM rentalPeriod~;(rcStartDate;(earliestDate \/ Delta)~ /\ rcDroppedOffDate;latestDate~)

(TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
INSERT INTO Isn{dety=CompNrDays}
SELECTFROM (earliestDate;(earliestDate \/ Delta)~ /\ latestDate;latestDate~)

(TO MAINTAIN -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
INSERT INTO Isn{dety=Date}
SELECTFROM ((earliestDate \/ Delta)~;earliestDate /\ -I[Date]) \/ ((earliestDate;earliestDate~ /\ latestDate;latestDate~)

(TO MAINTAIN -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDays
INSERT INTO Isn{dety=CompNrDays}
SELECTFROM (Delta;Delta~ /\ I[CompNrDays]) - I[CompNrDays]

INSERT INTO Isn{dety=Date}
SELECTFROM (Delta;Delta /\ I[Date]) - I[Date]

(MAINTAINING -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINTAINING -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINTAINING -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
(MAINTAINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDays
(MAINTAINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate::CompNrDays

```

```

ONE OF INSERT INTO rentalPeriod[RentalContract*Integer]
      SELECTFROM (rcStartDate;(earliestDate \ / Delta)~ /\ rcDroppedOffDate;latestDate;)
      (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
INSERT INTO Isn{dety=Integer}
      SELECTFROM rentalPeriod~;(rcStartDate;(earliestDate \ / Delta)~ /\ rcDroppedOffDate;latestDate;)
      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
INSERT INTO Isn{dety=CompNrDays}
      SELECTFROM (earliestDate;(earliestDate \ / Delta)~ /\ latestDate;latestDate~;compNrDays)
      (TO MAINTAIN -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \ / I[CompNrDays])
INSERT INTO Isn{dety=Date}
      SELECTFROM ((earliestDate \ / Delta)~;earliestDate /\ -I[Date]) \ / ((earliestDate;earliestDate~;latestDate~) /\ I[Date])
      (TO MAINTAIN -(earliestDate~;earliestDate) \ / I[Date] FROM UNI earliestDate~;latestDate~;compNrDays)
INSERT INTO Isn{dety=CompNrDays}
      SELECTFROM (Delta;Delta~ /\ I[CompNrDays]) - I[CompNrDays]
      (TO MAINTAIN -(Delta~;Delta) \ / I[Date])
INSERT INTO Isn{dety=Date}
      SELECTFROM (Delta~;Delta /\ I[Date]) - I[Date]

```

```

(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINAINING -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
(MAINAINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDa
(MAINAINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate::Comp

```

<-----End Derivation --

```

ON DELETE Delta FROM earliestDate[CompNrDays*Date] EXECUTE      -- (ECA rule 80)
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -((rcStartDate;(earliestDate /\ -Delta)~ /\ rcDroppedOffDate;latestDate~);compNrDays
      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrDays];((earliestDate /\ -Delta);rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -((rcStartDate;(earliestDate /\ -Delta)~ /\ rcDroppedOffDate;latestDate~);compNrDays
      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrDays];((earliestDate /\ -Delta);rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -((rcStartDate;(earliestDate /\ -Delta)~ /\ rcDroppedOffDate;latestDate~);compNrDays
      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
DELETE FROM Isn{detyp=CompNrDays}
      SELECTFROM -((earliestDate /\ -Delta);(earliestDate /\ -Delta)~) /\ I[CompNrDays]
      (TO MAINTAIN  -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UNI earliestDate::CompNrDays
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
(MAINAINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDays
(MAINAINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate::CompNrDays

```

----- Derivation ----->

```

ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -((rcStartDate;(earliestDate /\ -Delta)~ /\ rcDroppedOffDate;latestDate~);compNrDays
      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ latestDate;latestDate~)
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrDays];((earliestDate /\ -Delta);rcStartDate;rcStartDate~ /\ latestDate;latestDate~)

```



```

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -((rcStartDate;(earliestDate /\ -Delta)~ /\ rcDroppedOffDate;late

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrDays];((earliestDate /\ -Delta);rcStartD

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM  -((rcStartDate;(earliestDate /\ -Delta)~ /\ rcDroppedOffDate;lates

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM Isn{dety=CompNrDays}
      SELECTFROM  -((earliestDate /\ -Delta);(earliestDate /\ -Delta)~) /\ I[CompNrD

      (TO MAINTAIN  -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UNI ea
(MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINTAINING  -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDa
(MAINTAINING  -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate::Comp

```

<-----End Derivation --

```

ON INSERT Delta IN latestDate[CompNrDays*Date] EXECUTE      -- (ECA rule 81)
ONE OF INSERT INTO rentalPeriod[RentalContract*Integer]
      SELECTFROM  (rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate \/

      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate
INSERT INTO Isn{dety=Integer}
      SELECTFROM  rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
INSERT INTO Isn{dety=CompNrDays}
      SELECTFROM  (earliestDate;earliestDate~ /\ latestDate;(latestDate \/ Delt

      (TO MAINTAIN  -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/
INSERT INTO Isn{dety=Date}
      SELECTFROM  ((latestDate \/ Delta)~;latestDate /\ -I[Date]) \/ ((latestDa

      (TO MAINTAIN  -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::C
INSERT INTO Isn{dety=CompNrDays}
      SELECTFROM  (Delta;Delta~ /\ I[CompNrDays]) - I[CompNrDays]

INSERT INTO Isn{dety=Date}
      SELECTFROM  (Delta~;Delta /\ I[Date]) - I[Date]

(MAINTAINING  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN
(MAINTAINING  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN

```

```

(MAINAINING -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
(MAINAINING -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDays
(MAINAINING -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNrDays

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalPeriod[RentalContract*Integer]
    SELECTFROM (rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate \/ Delta)~;rcDroppedOffDate;latestDate)
    (TO MAINTAIN -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
    INSERT INTO Isn{detyp=Integer}
    SELECTFROM rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate \/ Delta)~;rcDroppedOffDate;latestDate)
    (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
    INSERT INTO Isn{detyp=CompNrDays}
    SELECTFROM (earliestDate;earliestDate~ /\ latestDate;(latestDate \/ Delta)~;rcDroppedOffDate;latestDate)
    (TO MAINTAIN -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
    INSERT INTO Isn{detyp=Date}
    SELECTFROM ((latestDate \/ Delta)~;latestDate /\ -I[Date]) \/ ((latestDate \/ Delta)~;rcDroppedOffDate;latestDate)
    (TO MAINTAIN -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDays
    INSERT INTO Isn{detyp=CompNrDays}
    SELECTFROM (Delta;Delta~ /\ I[CompNrDays]) - I[CompNrDays]

    INSERT INTO Isn{detyp=Date}
    SELECTFROM (Delta~;Delta /\ I[Date]) - I[Date]

(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
(MAINAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
(MAINAINING -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
(MAINAINING -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDays*Delta
(MAINAINING -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNrDays

```

<-----End Derivation --

```

ON DELETE Delta FROM latestDate[CompNrDays*Date] EXECUTE      -- (ECA rule 82)
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
    SELECTFROM (-((rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate \/ Delta)~;rcDroppedOffDate;latestDate)
    (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate)
    DELETE FROM rcDroppedOffDate[RentalContract*Date]
    SELECTFROM -(V[RentalContract*CompNrDays];(earliestDate;rcStartDate~ /\ latestDate;latestDate)
    (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate)
    DELETE FROM rcStartDate[RentalContract*Date]
    SELECTFROM (-((rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate \/ Delta)~;rcDroppedOffDate;latestDate)

```

```

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStart
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrDays];(earliestDate;rcStartDate~ /\

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStart
DELETE FROM Isn{dety=RentatContract}
      SELECTFROM  -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStart
DELETE FROM Isn{dety=CompNrDays}
      SELECTFROM  -((latestDate /\ -Delta);(latestDate /\ -Delta)~) /\ I[CompNr

      (TO MAINTAIN  -I[CompNrDays] \/ latestDate;I[Date];latestDate~ FROM UNI 1
(MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\
(MAINTAINING  -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDay
(MAINTAINING  -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNr

```

----- Derivation ----->

```

ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate /\

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrDays];(earliestDate;rcStartDate~ /\ (lat

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate /\

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM  -(V[RentalContract*CompNrDays];(earliestDate;rcStartDate~ /\ (lat

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM Isn{dety=RentatContract}
      SELECTFROM  -(rcStartDate;earliestDate~ /\ rcDroppedOffDate;(latestDate /\ -D

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~
DELETE FROM Isn{dety=CompNrDays}
      SELECTFROM  -((latestDate /\ -Delta);(latestDate /\ -Delta)~) /\ I[CompNrDays]

      (TO MAINTAIN  -I[CompNrDays] \/ latestDate;I[Date];latestDate~ FROM UNI latest
(MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINTAINING  -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDays*Dat
(MAINTAINING  -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNrDays

```

<-----End Derivation --

```

ON INSERT Delta IN compNrDays[CompNrDays*Integer] EXECUTE    -- (ECA rule 83)
ONE OF INSERT INTO rentalPeriod[RentalContract*Integer]
      SELECTFROM ((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);

      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);
INSERT INTO Isn{dety=Integer}
      SELECTFROM (rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);
INSERT INTO Isn{dety=Integer}
      SELECTFROM ((compNrDays \/ Delta)~;compNrDays /\ -I[Integer]) \/ ((compNrDays - I[CompNrDays]);

      (TO MAINTAIN  -(compNrDays~;I[CompNrDays];compNrDays) \/ I[Integer] FROM Compute number of days in
INSERT INTO Isn{dety=CompNrDays}
      SELECTFROM (Delta;Delta~ /\ I[CompNrDays]) - I[CompNrDays]

INSERT INTO Isn{dety=Integer}
      SELECTFROM (Delta~;Delta /\ I[Integer]) - I[Integer]

(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days in
(MAINTAINING -(compNrDays~;compNrDays) \/ I[Integer] FROM UNI compNrDays::CompNrDays*

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalPeriod[RentalContract*Integer]
      SELECTFROM ((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)

      (TO MAINTAIN  -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
INSERT INTO Isn{dety=Integer}
      SELECTFROM (rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);
INSERT INTO Isn{dety=Integer}
      SELECTFROM ((compNrDays \/ Delta)~;compNrDays /\ -I[Integer]) \/ ((compNrDays - I[CompNrDays]);

      (TO MAINTAIN  -(compNrDays~;I[CompNrDays];compNrDays) \/ I[Integer] FROM Compute number of days in
INSERT INTO Isn{dety=CompNrDays}
      SELECTFROM (Delta;Delta~ /\ I[CompNrDays]) - I[CompNrDays]

INSERT INTO Isn{dety=Integer}
      SELECTFROM (Delta~;Delta /\ I[Integer]) - I[Integer]

(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays)
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days in
(MAINTAINING -(compNrDays~;compNrDays) \/ I[Integer] FROM UNI compNrDays::CompNrDays*

```

<-----End Derivation --

```
ON DELETE Delta FROM compNrDays[CompNrDays*Integer] EXECUTE    -- (ECA rule 84)
DELETE FROM Isn{dety=CompNrDays}
  SELECTFROM -((compNrDays /\ -Delta);(compNrDays /\ -Delta)~) /\ I[CompNrDays]

(TO MAINTAIN  -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of da
```

----- Derivation ----->

```
DELETE FROM Isn{dety=CompNrDays}
  SELECTFROM -((compNrDays /\ -Delta);(compNrDays /\ -Delta)~) /\ I[CompNrDays]

(TO MAINTAIN  -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days in
```

<-----End Derivation --

```
ON INSERT Delta IN ctcNrOfDays[CompTariffedCharge*Integer] EXECUTE    -- (ECA rule 85)
ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
  SELECTFROM (rentalPeriod;(ctcNrOfDays \/ Delta)~ /\ rcIssuedCar;carType;e

(TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalT
INSERT INTO Isn{dety=Amount}
  SELECTFROM rentalBasicCharge~;(rentalPeriod;(ctcNrOfDays \/ Delta)~ /\ r

(TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
  SELECTFROM (rentalExcessPeriod;(ctcNrOfDays \/ Delta)~ /\ rcIssuedCar;car

(TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;e
INSERT INTO Isn{dety=Amount}
  SELECTFROM rentalPenaltyCharge~;(rentalExcessPeriod;(ctcNrOfDays \/ Delt

(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ 
INSERT INTO Isn{dety=CompTariffedCharge}
  SELECTFROM (ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;(ctcNrOfDays \

(TO MAINTAIN  -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays
INSERT INTO Isn{dety=Integer}
  SELECTFROM ((ctcNrOfDays \/ Delta)~;ctcNrOfDays /\ -I[Integer]) \/ ((ctc

(TO MAINTAIN  -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfD
INSERT INTO Isn{dety=CompTariffedCharge}
  SELECTFROM (Delta;Delta~ /\ I[CompTariffedCharge]) - I[CompTariffedCharg
```

```

INSERT INTO Isn{detyp=Integer}
  SELECTFROM (Delta~;Delta /\ I[Integer]) - I[Integer]

(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;
(MAINAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/ I[Integer]
(MAINAINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompTariffedCharge
(MAINAINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
  SELECTFROM (rentalPeriod;(ctcNrOfDays \/ Delta)~ /\ rcIssuedCar;carType;rentalTariffPerDay;
  (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
  INSERT INTO Isn{detyp=Amount}
  SELECTFROM rentalBasicCharge~;(rentalPeriod;(ctcNrOfDays \/ Delta)~ /\ rcIssuedCar;carType;rentalTariffPerDay;

  (TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
  INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
  SELECTFROM (rentalExcessPeriod;(ctcNrOfDays \/ Delta)~ /\ rcIssuedCar;carType;rentalTariffPerDay;

  (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
  INSERT INTO Isn{detyp=Amount}
  SELECTFROM rentalPenaltyCharge~;(rentalExcessPeriod;(ctcNrOfDays \/ Delta)~ /\ rcIssuedCar;carType;rentalTariffPerDay;

  (TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
  INSERT INTO Isn{detyp=CompTariffedCharge}
  SELECTFROM (ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;(ctcNrOfDays \/ Delta)~ /\ ctcNrOfDays;

  (TO MAINTAIN -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/ I[Integer]
  INSERT INTO Isn{detyp=Integer}
  SELECTFROM ((ctcNrOfDays \/ Delta)~;ctcNrOfDays /\ -I[Integer]) \/ ((ctcNrOfDays \/ Delta)~;ctcNrOfDays)

  (TO MAINTAIN -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompTariffedCharge
  INSERT INTO Isn{detyp=CompTariffedCharge}
  SELECTFROM (Delta;Delta~ /\ I[CompTariffedCharge]) - I[CompTariffedCharge]

INSERT INTO Isn{detyp=Integer}
  SELECTFROM (Delta~;Delta /\ I[Integer]) - I[Integer]

(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPerDay;
(MAINAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/ I[CompTariffedCharge]

```

```

(MAINAINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompTari
(MAINAINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays:

```

<-----End Derivation --

```

ON DELETE Delta FROM ctcNrOfDays[CompTariffedCharge*Integer] EXECUTE      -- (ECA :
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -((rentalPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carTy

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];((ctcNrOfDays /\ -Del

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -((rentalPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carTy

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];((ctcNrOfDays /\ -Del

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM Isn{detypr=RentalContract}
      SELECTFROM -((rentalPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carTy

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -((rentalExcessPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM -(V[RentalContract*CompTariffedCharge];((ctcNrOfDays /\ -Del

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
DELETE FROM Isn{detypr=RentalContract}
      SELECTFROM -((rentalExcessPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar

      (TO MAINTAIN -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
DELETE FROM Isn{detypr=CompTariffedCharge}
      SELECTFROM -((ctcNrOfDays /\ -Delta);(ctcNrOfDays /\ -Delta)~) /\ I[Comp

      (TO MAINTAIN -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Renta
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (
(MAINAINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::Comp
(MAINAINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOf

```

----- Derivation ----->

```

ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM (-(rentalPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carType;r

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM (-(V[RentalContract*CompTariffedCharge];((ctcNrOfDays /\ -Delta);r

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM (-(rentalPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carType;r

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM (-(V[RentalContract*CompTariffedCharge];((ctcNrOfDays /\ -Delta);r

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM (-(rentalPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carType;re

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM (-(rentalExcessPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;car

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM (-(V[RentalContract*CompTariffedCharge];((ctcNrOfDays /\ -Delta);r

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM (-(rentalExcessPeriod;(ctcNrOfDays /\ -Delta)~ /\ rcIssuedCar;carT

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM Isn{detyp=CompTariffedCharge}
      SELECTFROM (-(ctcNrOfDays /\ -Delta);(ctcNrOfDays /\ -Delta)~) /\ I[CompTarif

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays~ FR
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (renta
(MAINTAINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompTari
(MAINTAINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays:

```

<-----End Derivation --

```

ON INSERT Delta IN ctcDailyAmount[CompTariffedCharge*Amount] EXECUTE  -- (ECA :
ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
      SELECTFROM (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariff

```



```

(TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

(TO MAINTAIN -((rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

(TO MAINTAIN -((rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
INSERT INTO Isn{dety=CompTariffedCharge}
SELECTFROM (ctcDailyAmount;(ctcDailyAmount /\ Delta)~ /\ ctcNrOfDays;ctcNrOfDays~) /\ I[Amount]

(TO MAINTAIN -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) /\ I[Amount]
INSERT INTO Isn{dety=Amount}
SELECTFROM ((ctcDailyAmount /\ Delta)~;ctcDailyAmount /\ -I[Amount]) /\ I[Amount]

(TO MAINTAIN -(ctcDailyAmount~;ctcDailyAmount) /\ I[Amount] FROM UNI ctcDailyAmount
INSERT INTO Isn{dety=CompTariffedCharge}
SELECTFROM (Delta;Delta~ /\ I[CompTariffedCharge]) - I[CompTariffedCharge]

INSERT INTO Isn{dety=Amount}
SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
(MAINTAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) /\ I[Amount]
(MAINTAINING -(ctcDailyAmount~;ctcDailyAmount) /\ I[Amount] FROM UNI ctcDailyAmount
(MAINTAINING -I[CompTariffedCharge] /\ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDailyAmount

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
SELECTFROM (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

(TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

(TO MAINTAIN -((rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

```

```

(TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excess
INSERT INTO Isn{detyp=Amount}
SELECTFROM rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedC

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIss
INSERT INTO Isn{detyp=CompTariffedCharge}
SELECTFROM (ctcDailyAmount;(ctcDailyAmount \/ Delta)~ /\ ctcNrOfDays;ctcNrOfD

(TO MAINTAIN -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/
INSERT INTO Isn{detyp=Amount}
SELECTFROM ((ctcDailyAmount \/ Delta)~;ctcDailyAmount /\ -I[Amount]) \/ ((ctc

(TO MAINTAIN -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDaily
INSERT INTO Isn{detyp=CompTariffedCharge}
SELECTFROM (Delta;Delta~ /\ I[CompTariffedCharge]) - I[CompTariffedCharge]

INSERT INTO Isn{detyp=Amount}
SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINTAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/ I[CompT
(MAINTAINING -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmount::
(MAINTAINING -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDai

```

<-----End Derivation --

```

ON DELETE Delta FROM ctcDailyAmount[CompTariffedCharge*Amount] EXECUTE -- (EC
ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTar

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPe

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTar

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPe

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTar

```

```

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;ex

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalEx

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
DELETE FROM Isn{dety=RentContract}
      SELECTFROM  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exc

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract
DELETE FROM Isn{dety=CompTariffedCharge}
      SELECTFROM  -((ctcDailyAmount /\ -Delta);(ctcDailyAmount /\ -Delta)~) /\

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount];ctcDaily
(MAINTAINING  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Renta
(MAINTAINING  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (
(MAINTAINING  -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmo
(MAINTAINING  -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT c

```

----- Derivation ----->

```

ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffP

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod~

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffP

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalPeriod~

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM Isn{dety=RentContract}
      SELECTFROM  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPe

      (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Re
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessT

```

```

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM  -(V[RentalContract*CompTariffedCharge];(ctcNrOfDays;rentalExcessP

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM Isn{dety=RentContract}
      SELECTFROM  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTa

      (TO MAINTAIN  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \
DELETE FROM Isn{dety=CompTariffedCharge}
      SELECTFROM  -((ctcDailyAmount /\ -Delta);(ctcDailyAmount /\ -Delta)~) /\ I[Com

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount];ctcDailyAmount
      (MAINTAINING  -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
      (MAINTAINING  -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) \/ (renta
      (MAINTAINING  -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmount::
      (MAINTAINING  -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDai

```

<-----End Derivation --

```

ON INSERT Delta IN compTariffedCharge[CompTariffedCharge*Amount] EXECUTE  -- (
ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
      SELECTFROM  ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTari

      (TO MAINTAIN  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTari
INSERT INTO Isn{dety=Amount}
      SELECTFROM  (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar

      (TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar
INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM  ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exce

      (TO MAINTAIN  -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;e
INSERT INTO Isn{dety=Amount}
      SELECTFROM  (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcI

      (TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ :
INSERT INTO Isn{dety=Amount}
      SELECTFROM  ((compTariffedCharge \/ Delta)~;compTariffedCharge /\ -I[Amou

      (TO MAINTAIN  -(compTariffedCharge~;I[CompTariffedCharge];compTariffedCha
INSERT INTO Isn{dety=CompTariffedCharge}
      SELECTFROM  (Delta;Delta~ /\ I[CompTariffedCharge]) - I[CompTariffedCharge

INSERT INTO Isn{dety=Amount}
      SELECTFROM  (Delta~;Delta /\ I[Amount]) - I[Amount]

      (MAINTAINING  -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer

```

```

(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FR
(MAINAINING -(compTariffedCharge~;compTariffedCharge) \/ I[Amount] FROM UNI com

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalBasicCharge[RentalContract*Amount]
      SELECTFROM ((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer

      (TO MAINTAIN -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariff
      INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carT

      (TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
      INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM ((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar

      (TO MAINTAIN -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excess
      INSERT INTO Isn{dety=Amount}
      SELECTFROM (rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssued

      (TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIss
      INSERT INTO Isn{dety=Amount}
      SELECTFROM ((compTariffedCharge \/ Delta)~;compTariffedCharge /\ -I[Amount])

      (TO MAINTAIN -(compTariffedCharge~;I[CompTariffedCharge];compTariffedCharge)
      INSERT INTO Isn{dety=CompTariffedCharge}
      SELECTFROM (Delta;Delta~ /\ I[CompTariffedCharge]) - I[CompTariffedCharge]

      INSERT INTO Isn{dety=Amount}
      SELECTFROM (Delta~;Delta /\ I[Amount]) - I[Amount]

(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FROM Co
(MAINAINING -(compTariffedCharge~;compTariffedCharge) \/ I[Amount] FROM UNI compTari

```

<-----End Derivation --

```

ON DELETE Delta FROM compTariffedCharge[CompTariffedCharge*Amount] EXECUTE --
DELETE FROM Isn{dety=CompTariffedCharge}
      SELECTFROM -((compTariffedCharge /\ -Delta);(compTariffedCharge /\ -Delta)~) /\

      (TO MAINTAIN -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ F

```

----- Derivation ----->

```
DELETE FROM Isn{dety=CompTariffedCharge}
SELECTFROM -((compTariffedCharge /\ -Delta);(compTariffedCharge /\ -Delta)~) /\ I[Co

(TO MAINTAIN -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FROM C
```

<-----End Derivation --

```
ON INSERT Delta IN firstDate[CompNrExcessDays*Date] EXECUTE -- (ECA rule 91)
ONE OF INSERT INTO rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM (rcDroppedOffDate;lastDate~ /\ rcEndDate;(firstDate \/ Delta)~)

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
INSERT INTO Isn{dety=Integer}
    SELECTFROM rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
INSERT INTO Isn{dety=CompNrExcessDays}
    SELECTFROM (lastDate;lastDate~ /\ firstDate;(firstDate \/ Delta)~) /\ -I[CompNrExcessDays]

(TO MAINTAIN -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDays]
INSERT INTO Isn{dety=Date}
    SELECTFROM ((firstDate \/ Delta)~;firstDate /\ -I[Date]) \/ ((firstDate \/ Delta)~)

(TO MAINTAIN -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays
INSERT INTO Isn{dety=CompNrExcessDays}
    SELECTFROM (Delta;Delta~ /\ I[CompNrExcessDays]) - I[CompNrExcessDays]

INSERT INTO Isn{dety=Date}
    SELECTFROM (Delta~;Delta /\ I[Date]) - I[Date]

(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDays]
(MAINTAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrExcessDays
```

----- Derivation ----->

```
ONE OF INSERT INTO rentalExcessPeriod[RentalContract*Integer]
    SELECTFROM (rcDroppedOffDate;lastDate~ /\ rcEndDate;(firstDate \/ Delta)~);compNrExcessDays)

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
INSERT INTO Isn{dety=Integer}
```

```

SELECTFROM rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;(firstDate~
(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
INSERT INTO Isn{detyp=CompNrExcessDays}
SELECTFROM (lastDate;lastDate~ /\ firstDate;(firstDate \/ Delta)~ /\ -I[CompNrExcessDays]
(TO MAINTAIN -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDays]
INSERT INTO Isn{detyp=Date}
SELECTFROM ((firstDate \/ Delta)~;firstDate /\ -I[Date]) \/ ((firstDate \/ Delta)~;firstDate
(TO MAINTAIN -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays
INSERT INTO Isn{detyp=CompNrExcessDays}
SELECTFROM (Delta;Delta~ /\ I[CompNrExcessDays]) - I[CompNrExcessDays]

INSERT INTO Isn{detyp=Date}
SELECTFROM (Delta~;Delta /\ I[Date]) - I[Date]

(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDays] FROM UNI firstDate::CompNrExcessDays
(MAINTAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrExcessDays

```

<-----End Derivation --

```

ON DELETE Delta FROM firstDate[CompNrExcessDays*Date] EXECUTE -- (ECA rule 92)
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -((rcEndDate;(firstDate /\ -Delta)~ /\ rcDroppedOffDate;lastDate~)

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate)
DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrExcessDays];((firstDate /\ -Delta);

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate)
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -((rcEndDate;(firstDate /\ -Delta)~ /\ rcDroppedOffDate;lastDate~)

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate)
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM -(V[RentalContract*CompNrExcessDays];((firstDate /\ -Delta);

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate)
DELETE FROM Isn{detyp=RentalContract}
SELECTFROM -((rcEndDate;(firstDate /\ -Delta)~ /\ rcDroppedOffDate;lastDate~)

(TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate)
DELETE FROM Isn{detyp=CompNrExcessDays}
SELECTFROM -((firstDate /\ -Delta);(firstDate /\ -Delta)~) /\ I[CompNrExcessDays]

```

```

      (TO MAINTAIN  -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI fi
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[R
(MAINTAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays*
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrExcessDays*

```

----- Derivation ----->

```

ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;(firstDate /\ -Delta)~ /\ rcDroppedOffDate;lastDate~)

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];((firstDate /\ -Delta);rcEndDate~)

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;(firstDate /\ -Delta)~ /\ rcDroppedOffDate;lastDate~)

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];((firstDate /\ -Delta);rcEndDate~)

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM -(rcEndDate;(firstDate /\ -Delta)~ /\ rcDroppedOffDate;lastDate~)

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM Isn{detyp=CompNrExcessDays}
      SELECTFROM -((firstDate /\ -Delta);(firstDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN  -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI fi
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[RentalContract*
(MAINTAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays*
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrExcessDays*

```

<-----End Derivation --

```

ON INSERT Delta IN lastDate[CompNrExcessDays*Date] EXECUTE  -- (ECA rule 93)
ONE OF INSERT INTO rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM (rcDroppedOffDate;(lastDate \/ Delta)~ /\ rcEndDate;firstDate~)

      (TO MAINTAIN  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays*
INSERT INTO Isn{detyp=Integer}
      SELECTFROM rentalExcessPeriod~;(rcDroppedOffDate;(lastDate \/ Delta)~ /\ rcEndDate;firstDate~)

      (TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)

```



```

INSERT INTO Isn{dety=CompNrExcessDays}
  SELECTFROM (lastDate;(lastDate \ Delta)~ /\ firstDate;firstDate~ /\ -I[

(TO MAINTAIN -(lastDate;lastDate~ /\ firstDate;firstDate~) \ I[CompNrEx
INSERT INTO Isn{dety=Date}
  SELECTFROM ((lastDate \ Delta)~;lastDate /\ -I[Date]) \ ((lastDate \ Delta

(TO MAINTAIN -(lastDate~;lastDate) \ I[Date] FROM UNI lastDate::CompNrEx
INSERT INTO Isn{dety=CompNrExcessDays}
  SELECTFROM (Delta;Delta~ /\ I[CompNrExcessDays]) - I[CompNrExcessDays]

INSERT INTO Isn{dety=Date}
  SELECTFROM (Delta~;Delta /\ I[Date]) - I[Date]

(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
(MAINTAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \ I[CompNrExcessDays
(MAINTAINING -(lastDate~;lastDate) \ I[Date] FROM UNI lastDate::CompNrExcessDay
(MAINTAINING -I[CompNrExcessDays] \ lastDate;lastDate~ FROM TOT lastDate::CompNr

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalExcessPeriod[RentalContract*Integer]
  SELECTFROM (rcDroppedOffDate;(lastDate \ Delta)~ /\ rcEndDate;firstDate~);co

(TO MAINTAIN -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExc
INSERT INTO Isn{dety=Integer}
  SELECTFROM rentalExcessPeriod~;(rcDroppedOffDate;(lastDate \ Delta)~ /\ rcEn

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;f
INSERT INTO Isn{dety=CompNrExcessDays}
  SELECTFROM (lastDate;(lastDate \ Delta)~ /\ firstDate;firstDate~ /\ -I[CompN

(TO MAINTAIN -(lastDate;lastDate~ /\ firstDate;firstDate~) \ I[CompNrExcessD
INSERT INTO Isn{dety=Date}
  SELECTFROM ((lastDate \ Delta)~;lastDate /\ -I[Date]) \ ((lastDate \ Delta

(TO MAINTAIN -(lastDate~;lastDate) \ I[Date] FROM UNI lastDate::CompNrExcess
INSERT INTO Isn{dety=CompNrExcessDays}
  SELECTFROM (Delta;Delta~ /\ I[CompNrExcessDays]) - I[CompNrExcessDays]

INSERT INTO Isn{dety=Date}
  SELECTFROM (Delta~;Delta /\ I[Date]) - I[Date]

(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \ I[CompNrExcessDays] FRO
(MAINTAINING -(lastDate~;lastDate) \ I[Date] FROM UNI lastDate::CompNrExcessDays*Dat
(MAINTAINING -I[CompNrExcessDays] \ lastDate;lastDate~ FROM TOT lastDate::CompNrExce

```

<-----End Derivation --

```

ON DELETE Delta FROM lastDate[CompNrExcessDays*Date] EXECUTE    -- (ECA rule 94)
ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;firstDate~ /\ rcDroppedOffDate;(lastDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEndDate~ /\ I[CompNrExcessDays])

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;firstDate~ /\ rcDroppedOffDate;(lastDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEndDate~ /\ I[CompNrExcessDays])

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM Isn{dety=RentalContract}
      SELECTFROM -(rcEndDate;firstDate~ /\ rcDroppedOffDate;(lastDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM Isn{dety=CompNrExcessDays}
      SELECTFROM -((lastDate /\ -Delta);(lastDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~ FROM UNI lastDate::CompNrExcessDays
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
(MAINTAINING -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcessDays
(MAINTAINING -I[CompNrExcessDays] \/ lastDate;lastDate~ FROM TOT lastDate::CompNrExcessDays

```

----- Derivation ----->

```

ONE OF DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;firstDate~ /\ rcDroppedOffDate;(lastDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEndDate~ /\ I[CompNrExcessDays])

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(rcEndDate;firstDate~ /\ rcDroppedOffDate;(lastDate /\ -Delta)~) /\ I[CompNrExcessDays]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[CompNrExcessDays])
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM -(V[RentalContract*CompNrExcessDays];(firstDate;rcEndDate~ /\ I[CompNrExcessDays])

```

```

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM Isn{detyp=RentalContract}
      SELECTFROM  -((rcEndDate;firstDate~ /\ rcDroppedOffDate;(lastDate /\ -Delta)~)

      (TO MAINTAIN  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\
DELETE FROM Isn{detyp=CompNrExcessDays}
      SELECTFROM  -((lastDate /\ -Delta);(lastDate /\ -Delta)~) /\ I[CompNrExcessDay

      (TO MAINTAIN  -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~ FROM UNI last
(MAINTAINING  -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Rental
(MAINTAINING  -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcessDays*Dat
(MAINTAINING  -I[CompNrExcessDays] \/ lastDate;lastDate~ FROM TOT lastDate::CompNrExce

```

<-----End Derivation --

```

ON INSERT Delta IN compNrExcessDays[CompNrExcessDays*Integer] EXECUTE  -- (ECA
ONE OF INSERT INTO rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM  ((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExce

      (TO MAINTAIN  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExce
INSERT INTO Isn{detyp=Integer}
      SELECTFROM  (rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate

      (TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
INSERT INTO Isn{detyp=Integer}
      SELECTFROM  ((compNrExcessDays \/ Delta)~;compNrExcessDays /\ -I[Integer]

      (TO MAINTAIN  -(compNrExcessDays~;I[CompNrExcessDays];compNrExcessDays) \
INSERT INTO Isn{detyp=CompNrExcessDays}
      SELECTFROM  (Delta;Delta~ /\ I[CompNrExcessDays]) - I[CompNrExcessDays]

INSERT INTO Isn{detyp=Integer}
      SELECTFROM  (Delta~;Delta /\ I[Integer]) - I[Integer]

      (MAINTAINING  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
      (MAINTAINING  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
      (MAINTAINING  -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM Comp
      (MAINTAINING  -(compNrExcessDays~;compNrExcessDays) \/ I[Integer] FROM UNI compNr

```

----- Derivation ----->

```

ONE OF INSERT INTO rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM  ((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess

      (TO MAINTAIN  -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExce
INSERT INTO Isn{detyp=Integer}

```

```

SELECTFROM (rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
INSERT INTO Isn{dety=Integer}
SELECTFROM ((compNrExcessDays /\ Delta)~;compNrExcessDays /\ -I[Integer]) /\

(TO MAINTAIN -(compNrExcessDays~;I[CompNrExcessDays];compNrExcessDays) /\ I[I[CompNrExcessDays]]
INSERT INTO Isn{dety=CompNrExcessDays}
SELECTFROM (Delta;Delta~ /\ I[CompNrExcessDays]) - I[CompNrExcessDays]

INSERT INTO Isn{dety=Integer}
SELECTFROM (Delta~;Delta /\ I[Integer]) - I[Integer]

(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -I[CompNrExcessDays] /\ compNrExcessDays;compNrExcessDays~ FROM Compute
(MAINTAINING -(compNrExcessDays~;compNrExcessDays) /\ I[Integer] FROM UNI compNrExcessDays

<-----End Derivation --

ON DELETE Delta FROM compNrExcessDays[CompNrExcessDays*Integer] EXECUTE -- (E
DELETE FROM Isn{dety=CompNrExcessDays}
SELECTFROM -((compNrExcessDays /\ -Delta);(compNrExcessDays /\ -Delta)~) /\ I[CompNrExcessDays]

(TO MAINTAIN -I[CompNrExcessDays] /\ compNrExcessDays;compNrExcessDays~ FROM Compute

----- Derivation ----->

DELETE FROM Isn{dety=CompNrExcessDays}
SELECTFROM -((compNrExcessDays /\ -Delta);(compNrExcessDays /\ -Delta)~) /\ I[CompNrExcessDays]

(TO MAINTAIN -I[CompNrExcessDays] /\ compNrExcessDays;compNrExcessDays~ FROM Compute

<-----End Derivation --

ON INSERT Delta IN distbranch[DistanceBetweenLocations*Branch] EXECUTE -- (E
ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (rcDroppedOffBranch;(distbranch /\ Delta)~ /\ rcDropoffBranch

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalLocationPenaltyCharge~;(rcDroppedOffBranch;(distbranch /\ Delta)~)

(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcDroppedOffBranch;(distbranch /\ Delta)~)

```

```

THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM 'a' [RentalContract]*'b' [Amount]

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
PICK a,b FROM rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~)
THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM 'b' [DistanceBetweenLocations]*'a' [Amount]

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
NEW x:Amount;
ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (rcDroppedOffBranch;(distbranch \/ Delta)~ /\ rcDropoffBranch;distbranch~)

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM ((distbranch \/ Delta);rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
(MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
INSERT INTO Isn{detyp=DistanceBetweenLocations}
SELECTFROM (Delta;Delta~ /\ I[DistanceBetweenLocations]) - I[DistanceBetweenLocations]

INSERT INTO Isn{detyp=Branch}
SELECTFROM (Delta~;Delta /\ I[Branch]) - I[Branch]

(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch~);d
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch~);d
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch~);d

```

----- Derivation ----->

```

ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (rcDroppedOffBranch;(distbranch \/ Delta)~ /\ rcDropoffBranch;distbranch~)

(TO MAINTAIN -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
INSERT INTO Isn{detyp=Amount}
SELECTFROM rentalLocationPenaltyCharge~;(rcDroppedOffBranch;(distbranch \/ Delta)~ /\ rcDropoffBranch;distbranch~)

(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcDroppedOffBranch;(distbranch \/ Delta)~ /\ rcDropoffBranch;distbranch~)
THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM 'a' [RentalContract]*'b' [Amount]

(TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
PICK a,b FROM rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)

```

```

        THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
            SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Amount]

            (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
(MAINAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
NEW x:Amount;
    ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
        SELECTFROM (rcDroppedOffBranch;(distbranch \/ Delta)~ /\ rcDropoffBranch;distbranch~)

        (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
        SELECTFROM ((distbranch \/ Delta);rcDroppedOffBranch~ /\ (distbranch~)

        (TO MAINTAIN -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
        (MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
        (MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
        (MAINTAINING -(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~)
INSERT INTO Isn{detyp=DistanceBetweenLocations}
        SELECTFROM (Delta;Delta~ /\ I[DistanceBetweenLocations]) - I[DistanceBetweenLocations]

INSERT INTO Isn{detyp=Branch}
        SELECTFROM (Delta~;Delta /\ I[Branch]) - I[Branch]

(MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch~)
(MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch~)
(MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch~)

<-----End Derivation --

        ON DELETE Delta FROM distbranch[DistanceBetweenLocations*Branch] EXECUTE      -- (EC
        BLOCK
        (CANNOT CHANGE V[Branch*Branch] FROM Completeness of distance table)

----- Derivation ----->

        BLOCK
        (CANNOT CHANGE V[Branch*Branch] FROM Completeness of distance table)

<-----End Derivation --

        ON INSERT Delta IN distance[DistanceBetweenLocations*Distance] EXECUTE      -- (EC
        ONE OF INSERT INTO Isn{detyp=Distance}
            SELECTFROM ((distance \/ Delta)~;distance /\ -I[Distance]) \/ ((distance

            (TO MAINTAIN -(distance~;distance) \/ I[Distance] FROM UNI distance::Distance)

```

```

INSERT INTO Isn{dety=DistanceBetweenLocations}
  SELECTFROM (Delta;Delta~ /\ I[DistanceBetweenLocations]) - I[DistanceBet

INSERT INTO Isn{dety=Distance}
  SELECTFROM (Delta~;Delta /\ I[Distance]) - I[Distance]

(MAINTEINING -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBet
(MAINTEINING -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distance

```

----- Derivation ----->

```

ONE OF INSERT INTO Isn{dety=Distance}
  SELECTFROM ((distance \/ Delta~;distance /\ -I[Distance]) \/ ((distance \/ D

  (TO MAINTAIN -(distance~;distance) \/ I[Distance] FROM UNI distance::Distance
INSERT INTO Isn{dety=DistanceBetweenLocations}
  SELECTFROM (Delta;Delta~ /\ I[DistanceBetweenLocations]) - I[DistanceBetweenL

INSERT INTO Isn{dety=Distance}
  SELECTFROM (Delta~;Delta /\ I[Distance]) - I[Distance]

(MAINTEINING -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetweenL
(MAINTEINING -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distance::Di

```

<-----End Derivation --

```

ON DELETE Delta FROM distance[DistanceBetweenLocations*Distance] EXECUTE -- (
DELETE FROM Isn{dety=DistanceBetweenLocations}
  SELECTFROM -((distance /\ -Delta);(distance /\ -Delta)~) /\ I[DistanceBetweenLo

  (TO MAINTAIN -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBe
  (TO MAINTAIN -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distan

```

----- Derivation ----->

```

DELETE FROM Isn{dety=DistanceBetweenLocations}
  SELECTFROM -((distance /\ -Delta);(distance /\ -Delta)~) /\ I[DistanceBetweenLocatio

  (TO MAINTAIN -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetween
  (TO MAINTAIN -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distance::D

```

<-----End Derivation --

```

ON INSERT Delta IN sessionBranch[SESSION*Branch] EXECUTE -- (ECA rule 101)

```

```

ALL of INSERT INTO Isn{dety=Branch}
    SELECTFROM ((sessionBranch \/ Delta)~;sessionBranch /\ -I[Branch]) \/ ((
    (TO MAINTAIN -(sessionBranch~;sessionBranch) \/ I[Branch] FROM UNI sessi
    INSERT INTO Isn{dety=SESSION}
    SELECTFROM (Delta;Delta~ /\ I[SESSION]) - I[SESSION]

(MAINTAINING -(sessionBranch~;sessionBranch) \/ I[Branch] FROM UNI sessionBranch

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Branch}
    SELECTFROM ((sessionBranch \/ Delta)~;sessionBranch /\ -I[Branch]) \/ ((sessi
    (TO MAINTAIN -(sessionBranch~;sessionBranch) \/ I[Branch] FROM UNI sessionBra
    INSERT INTO Isn{dety=SESSION}
    SELECTFROM (Delta;Delta~ /\ I[SESSION]) - I[SESSION]

(MAINTAINING -(sessionBranch~;sessionBranch) \/ I[Branch] FROM UNI sessionBranch::SES

```

<-----End Derivation --

```

ON INSERT Delta IN sessionToday[SESSION*Date] EXECUTE -- (ECA rule 103)
ALL of INSERT INTO Isn{dety=Date}
    SELECTFROM ((sessionToday \/ Delta)~;sessionToday /\ -I[Date]) \/ ((sess
    (TO MAINTAIN -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionTo
    INSERT INTO Isn{dety=SESSION}
    SELECTFROM (Delta;Delta~ /\ I[SESSION]) - I[SESSION]

(MAINTAINING -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionToday::SES

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Date}
    SELECTFROM ((sessionToday \/ Delta)~;sessionToday /\ -I[Date]) \/ ((sessionTo
    (TO MAINTAIN -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionToday::
    INSERT INTO Isn{dety=SESSION}
    SELECTFROM (Delta;Delta~ /\ I[SESSION]) - I[SESSION]

(MAINTAINING -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionToday::SESSION*

```

<-----End Derivation --


```

ON INSERT Delta IN sessionRC[SESSION*RentalContract] EXECUTE      -- (ECA rule 105)
ALL of INSERT INTO Isn{dety=RentalContract}
    SELECTFROM ((sessionRC \ / Delta)~;sessionRC /\ -I[RentalContract]) \ / ((

    (TO MAINTAIN -(sessionRC~;sessionRC) \ / (I[RentalContract] /\ rcPickupBr
    (TO MAINTAIN -(sessionRC~;sessionRC) \ / I[RentalContract] FROM UNI sessi
    INSERT INTO Isn{dety=SESSION}
    SELECTFROM (sessionRC;(sessionRC \ / Delta)~ /\ -I[SESSION]) \ / (Delta;(s

    (TO MAINTAIN -(sessionRC;sessionRC~) \ / I[SESSION] FROM INJ sessionRC::S
    ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((sessionRC /\ -(session
        THEN INSERT INTO sessionRC[SESSION*RentalContract]
            SELECTFROM 'a'[SESSION]*'b'[RentalContract]

            (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
            PICK a,b FROM sessionRC~;((sessionRC /\ -(sessionRC;(I[RentalContract]
            THEN ALL of INSERT INTO Isn{dety=RentalContract}
                SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

                (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
                ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM
                    THEN INSERT INTO rcPickupBranch[RentalContract]
                        SELECTFROM 'a'[RentalContract]

                        (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
                        PICK a,b FROM rcPickupBranch~;('a'[RentalContract]
                        THEN INSERT INTO rcPickupBranch[RentalContract]
                            SELECTFROM 'b'[RentalContract]

                            (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
                            (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract]
                            NEW x:Branch;
                            ALL of INSERT INTO rcPickupBranch[RentalContract]
                                SELECTFROM 'a'[RentalContract]

                                (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
                                INSERT INTO rcPickupBranch[RentalContract]
                                    SELECTFROM 'b'[RentalContract]

                                    (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
                                    (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract]
                                    (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract]
                                    (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract]
                                    ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM
                                        THEN INSERT INTO rcStartDate[RentalContract]
                                            SELECTFROM 'a'[RentalContract]

                                            (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalContract]
                                            PICK a,b FROM rcStartDate~;('a'[RentalContract]

```

```

THEN INSERT INTO rcStartDate[RentalContract]
SELECTFROM 'b'[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC;
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
NEW x:Date;
ALL of INSERT INTO rcStartDate[RentalContract]
SELECTFROM 'a'[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC;
INSERT INTO rcStartDate[RentalContract]
SELECTFROM 'b'[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC;
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract] /\ rcPickupBranch
NEW x:RentalContract;
ALL of INSERT INTO sessionRC[SESSION*RentalContract]
SELECTFROM ((sessionRC /\ -(sessionRC; (I[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC; (I[RentalContract]
INSERT INTO Isn{dety=RentalContract}
SELECTFROM 'x'[RentalContract]*((sessionRC /\ -(sessionRC; (I[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC; (I[RentalContract]
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[RentalContract]
THEN INSERT INTO rcPickupBranch[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC;
PICK a,b FROM rcPickupBranch~; ('x'[RentalContract]
THEN INSERT INTO rcPickupBranch[RentalContract]
SELECTFROM 'b'[RentalContract]*'a'[RentalContract]

(TO MAINTAIN -sessionRC \ / sessionRC;
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
NEW x:Branch;
INSERT INTO rcPickupBranch[RentalContract*Branch]
SELECTFROM 'x'[RentalContract]*'x'[Branch] \ / (

(TO MAINTAIN -sessionRC \ / sessionRC; (I[RentalContract]
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract]
(MAINAINING -sessionRC \ / sessionRC; (I[RentalContract] /\
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[RentalContract]
THEN INSERT INTO rcStartDate[RentalContract]
SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

        (TO MAINTAIN -sessionRC \ / sessionRC;
        PICK a,b FROM rcStartDate~;('x'[RentalContr
        THEN INSERT INTO rcStartDate[RentalContract
        SELECTFROM 'b'[RentalContract]*'a'[Da

        (TO MAINTAIN -sessionRC \ / sessionRC;
        (MAINTAINING -sessionRC \ / sessionRC;(I[RentalCont
        NEW x:Date;
        INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'x'[RentalContract]*'x'[Date] \ / ((s

        (TO MAINTAIN -sessionRC \ / sessionRC;(I[RentalC
        (MAINTAINING -sessionRC \ / sessionRC;(I[RentalCont
        (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract] /
        (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract] /\ rcPic
        (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract] /\ rcPickup
        (MAINTAINING -sessionRC \ / sessionRC;(I[RentalContract] /\ rcPickupBranch
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((sessionRC \ / Delta)~;
        THEN INSERT INTO rcPickupBranch[RentalContract*Branch]
        SELECTFROM 'a'[RentalContract]*'b'[Branch]

        (TO MAINTAIN -(sessionRC~;sessionRC) \ / (I[RentalCont
        PICK a,b FROM rcPickupBranch~;(((sessionRC \ / Delta)~;sessi
        THEN INSERT INTO rcPickupBranch[RentalContract*Branch]
        SELECTFROM 'b'[RentalContract]*'a'[Branch]

        (TO MAINTAIN -(sessionRC~;sessionRC) \ / (I[RentalCont
        (MAINTAINING -(sessionRC~;sessionRC) \ / (I[RentalContract] /\ rcPi
        NEW x:Branch;
        INSERT INTO rcPickupBranch[RentalContract*Branch]
        SELECTFROM (((sessionRC \ / Delta)~;sessionRC /\ -I[RentalContra

        (TO MAINTAIN -(sessionRC~;sessionRC) \ / (I[RentalContract] /\ r
        (MAINTAINING -(sessionRC~;sessionRC) \ / (I[RentalContract] /\ rcPi
        (MAINTAINING -(sessionRC~;sessionRC) \ / (I[RentalContract] /\ rcPickupBra
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((sessionRC \ / Delta)~;
        THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN -(sessionRC~;sessionRC) \ / (I[RentalCont
        PICK a,b FROM rcStartDate~;(((sessionRC \ / Delta)~;sessionR
        THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(sessionRC~;sessionRC) \ / (I[RentalCont
        (MAINTAINING -(sessionRC~;sessionRC) \ / (I[RentalContract] /\ rcPi
        NEW x:Date;
        INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM (((sessionRC \ / Delta)~;sessionRC /\ -I[RentalContra

```

```

        (TO MAINTAIN -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ r
        (MAINTAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPi
        (MAINTAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBra
(MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPick
(MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPick
(MAINTAINING -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::SESSION*R
(MAINTAINING -(sessionRC~;sessionRC) \/ I[RentalContract] FROM UNI sessionRC::SE

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=RentalContract}
    SELECTFROM ((sessionRC \/ Delta)~;sessionRC /\ -I[RentalContract]) \/ ((sessi

    (TO MAINTAIN -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;
    (TO MAINTAIN -(sessionRC~;sessionRC) \/ I[RentalContract] FROM UNI sessionRC:
    INSERT INTO Isn{dety=SESSION}
    SELECTFROM (sessionRC;(sessionRC \/ Delta)~ /\ -I[SESSION]) \/ (Delta;(sessio

    (TO MAINTAIN -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::SESSIO
    ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ((sessionRC /\ -(sessionRC;(I
        THEN INSERT INTO sessionRC[SESSION*RentalContract]
            SELECTFROM 'a'[SESSION]*'b'[RentalContract]

        (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract] /\
        PICK a,b FROM sessionRC~;((sessionRC /\ -(sessionRC;(I[RentalCon
        THEN ALL of INSERT INTO Isn{dety=RentalContract}
            SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContr
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a
            THEN INSERT INTO rcPickupBranch[Rental
                SELECTFROM 'a'[RentalContract]*'

        (TO MAINTAIN -sessionRC \/ sessi
        PICK a,b FROM rcPickupBranch~;('a'[Ren
        THEN INSERT INTO rcPickupBranch[Rental
            SELECTFROM 'b'[RentalContract]*'

        (TO MAINTAIN -sessionRC \/ sessi
        (MAINTAINING -sessionRC \/ sessionRC;(I[Renta
        NEW x:Branch;
        ALL of INSERT INTO rcPickupBranch[RentalCon
            SELECTFROM 'a'[RentalContract]*'b'[

        (TO MAINTAIN -sessionRC \/ sessionR
        INSERT INTO rcPickupBranch[RentalCon
            SELECTFROM 'b'[RentalContract]*'a'[

```

```

        (TO MAINTAIN -sessionRC \/ sessionRC;
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [RentalContract]
        THEN INSERT INTO rcStartDate[RentalContract]
        SELECTFROM 'a' [RentalContract]*'a' [RentalContract]

        (TO MAINTAIN -sessionRC \/ sessionRC;
        PICK a,b FROM rcStartDate~;('a' [RentalContract]
        THEN INSERT INTO rcStartDate[RentalContract]
        SELECTFROM 'b' [RentalContract]*'b' [RentalContract]

        (TO MAINTAIN -sessionRC \/ sessionRC;
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract]
        SELECTFROM 'a' [RentalContract]*'b' [RentalContract]

        (TO MAINTAIN -sessionRC \/ sessionRC;
        INSERT INTO rcStartDate[RentalContract]
        SELECTFROM 'b' [RentalContract]*'a' [RentalContract]

        (TO MAINTAIN -sessionRC \/ sessionRC;
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch
        NEW x:RentalContract;
        ALL of INSERT INTO sessionRC[SESSION*RentalContract]
        SELECTFROM ((sessionRC /\ -(sessionRC;(I[RentalContract] /\ rcPickupBranch

        (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch
        INSERT INTO Isn{dety=RentalContract}
        SELECTFROM 'x' [RentalContract]*((sessionRC /\ -(sessionRC;(I[RentalContract] /\ rcPickupBranch

        (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x' [RentalContract]
        THEN INSERT INTO rcPickupBranch[RentalContract*B]
        SELECTFROM 'a' [RentalContract]*'b' [Branch]

        (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract]
        PICK a,b FROM rcPickupBranch~;('x' [RentalContract]
        THEN INSERT INTO rcPickupBranch[RentalContract*B]
        SELECTFROM 'b' [RentalContract]*'a' [Branch]

        (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract]
        (MAINTAINING -sessionRC \/ sessionRC;(I[RentalContract]
        NEW x:Branch;

```

```

INSERT INTO rcPickupBranch[RentalContract*Branch]
SELECTFROM 'x'[RentalContract]*'x'[Branch] \\/ ((sess

      (TO MAINTAIN -sessionRC \\/ sessionRC;(I[RentalContra
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract]
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract] /\ rcP
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[RentalCo
      THEN INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

      (TO MAINTAIN -sessionRC \\/ sessionRC;(I[Re
      PICK a,b FROM rcStartDate~;'x'[RentalContract]*
      THEN INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'b'[RentalContract]*'a'[Date]

      (TO MAINTAIN -sessionRC \\/ sessionRC;(I[Re
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract]
NEW x:Date;
      INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'x'[RentalContract]*'x'[Date] \\/ ((sessio

      (TO MAINTAIN -sessionRC \\/ sessionRC;(I[RentalContra
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract]
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract] /\ rcP
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract] /\ rcPickupBr
      (MAINTAINING -sessionRC \\/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPi
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((sessionRC \\/ Delta)~;sessi
      THEN INSERT INTO rcPickupBranch[RentalContract*Branch]
      SELECTFROM 'a'[RentalContract]*'b'[Branch]

      (TO MAINTAIN -(sessionRC~;sessionRC) \\/ (I[RentalContract]
      PICK a,b FROM rcPickupBranch~;(((sessionRC \\/ Delta)~;sessionRC
      THEN INSERT INTO rcPickupBranch[RentalContract*Branch]
      SELECTFROM 'b'[RentalContract]*'a'[Branch]

      (TO MAINTAIN -(sessionRC~;sessionRC) \\/ (I[RentalContract]
      (MAINTAINING -(sessionRC~;sessionRC) \\/ (I[RentalContract] /\ rcPickupB
NEW x:Branch;
      INSERT INTO rcPickupBranch[RentalContract*Branch]
      SELECTFROM (((sessionRC \\/ Delta)~;sessionRC /\ -I[RentalContract]))

      (TO MAINTAIN -(sessionRC~;sessionRC) \\/ (I[RentalContract] /\ rcPick
      (MAINTAINING -(sessionRC~;sessionRC) \\/ (I[RentalContract] /\ rcPickupB
      (MAINTAINING -(sessionRC~;sessionRC) \\/ (I[RentalContract] /\ rcPickupBranch;r
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (((sessionRC \\/ Delta)~;sessi
      THEN INSERT INTO rcStartDate[RentalContract*Date]
      SELECTFROM 'a'[RentalContract]*'b'[Date]

      (TO MAINTAIN -(sessionRC~;sessionRC) \\/ (I[RentalContract]

```

```

        PICK a,b FROM rcStartDate~;(((sessionRC \/ Delta)~;sessionRC /\
        THEN INSERT INTO rcStartDate[RentalContract*Date]
            SELECTFROM 'b'[RentalContract]*'a'[Date]

            (TO MAINTAIN -(sessionRC~;sessionRC) \/ (I[RentalContract]
(MAINAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupB
NEW x:Date;
        INSERT INTO rcStartDate[RentalContract*Date]
            SELECTFROM (((sessionRC \/ Delta)~;sessionRC /\ -I[RentalContract]))

            (TO MAINTAIN -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPick
            (MAINAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupB
            (MAINAINING -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;r
(MAINAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBra
(MAINAINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBra
(MAINAINING -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::SESSION*Rental
(MAINAINING -(sessionRC~;sessionRC) \/ I[RentalContract] FROM UNI sessionRC::SESSION

<-----End Derivation --

ON DELETE Delta FROM sessionRC[SESSION*RentalContract] EXECUTE -- (ECA rule 1
DELETE FROM sessionRC[SESSION*RentalContract]
    SELECTFROM -((sessionRC /\ -Delta);(I[RentalContract] /\ rcPickupBranch;rcPickup

    (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPic

----- Derivation ----->

DELETE FROM sessionRC[SESSION*RentalContract]
    SELECTFROM -((sessionRC /\ -Delta);(I[RentalContract] /\ rcPickupBranch;rcPickupBra

    (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBr

<-----End Derivation --

ON INSERT Delta IN Isn{dety=Branch} EXECUTE -- (ECA rule 107)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Branch] /\ -(branchOf;'EU-Rent
    THEN INSERT INTO branchOf[Branch*CarRentalCompany]
        SELECTFROM 'a'[Branch]*'b'[CarRentalCompany]

        (TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'[CarRentalComp
PICK a,b FROM branchOf~;(I[Branch] /\ -(branchOf;'EU-Rent'[CarRent
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[CarRent
    THEN BLOCK
        (CANNOT CHANGE 'EU-Rent'[CarRentalCompany]

```

```

PICK a,b FROM 'EU-Rent' [CarRentalCompany]; ('a' [
THEN INSERT INTO branchOf [Branch*CarRentalCompany]
SELECTFROM 'b' [Branch]*'a' [CarRentalCompany]

(TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany]
NEW x:CarRentalCompany;
ALL of BLOCK
(CANNOT CHANGE 'EU-Rent' [CarRentalCompany] FROM
INSERT INTO branchOf [Branch*CarRentalCompany]
SELECTFROM 'b' [Branch]*'a' [CarRentalCompany]

(TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany]
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany]
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany];branchOf~
NEW x:CarRentalCompany;
ALL of INSERT INTO branchOf [Branch*CarRentalCompany]
SELECTFROM (I[Branch] /\ -(branchOf;'EU-Rent' [CarRentalCompany]

(TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany]
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x' [CarRentalCompany]
THEN BLOCK
(CANNOT CHANGE 'EU-Rent' [CarRentalCompany] FROM EUREnt
PICK a,b FROM 'EU-Rent' [CarRentalCompany]; ('x' [CarRentalCompany]
THEN INSERT INTO branchOf [Branch*CarRentalCompany]
SELECTFROM 'b' [Branch]*'a' [CarRentalCompany]

(TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany]
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany];
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany];branchOf
(MAINTAINING -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany];branchOf~
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Branch] /\ -(branchOf;branchOf~
THEN INSERT INTO branchOf [Branch*CarRentalCompany]
SELECTFROM 'a' [Branch]*'b' [CarRentalCompany]

(TO MAINTAIN -I[Branch] \/ branchOf;I[CarRentalCompany];branchOf
PICK a,b FROM branchOf~;(I[Branch] /\ -(branchOf;branchOf~))
THEN INSERT INTO branchOf [Branch*CarRentalCompany]
SELECTFROM 'b' [Branch]*'a' [CarRentalCompany]

(TO MAINTAIN -I[Branch] \/ branchOf;I[CarRentalCompany];branchOf
(MAINTAINING -I[Branch] \/ branchOf;I[CarRentalCompany];branchOf~ FROM UN
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Branch] /\ -(branchLocation;branchOf~
THEN INSERT INTO branchLocation [Branch*Location]
SELECTFROM 'a' [Branch]*'b' [Location]

(TO MAINTAIN -I[Branch] \/ branchLocation;I[Location];branchOf
PICK a,b FROM branchLocation~;(I[Branch] /\ -(branchLocation;branchOf~

```



```

THEN INSERT INTO branchLocation[Branch*Location]
SELECTFROM 'b'[Branch]*'a'[Location]

      (TO MAINTAIN -I[Branch] \/ branchLocation;I[Location];branch
(MAINAINING -I[Branch] \/ branchLocation;I[Location];branchLocation~ FROM
NEW x:Location;
      INSERT INTO branchLocation[Branch*Location]
      SELECTFROM (I[Branch] /\ -(branchLocation;branchLocation~))*'x'[Locati

      (TO MAINTAIN -I[Branch] \/ branchLocation;I[Location];branchLocation~
      (MAINAINING -I[Branch] \/ branchLocation;I[Location];branchLocation~ FROM
(MAINAINING -branchOf \/ branchOf;'EU-Rent'[CarRentalCompany] FROM EURent bran
(MAINAINING -(branchOf~;branchOf) \/ I[CarRentalCompany] FROM UNI branchOf::Bra
(MAINAINING -I[Branch] \/ branchOf;branchOf~ FROM TOT branchOf::Branch*CarRenta
(MAINAINING -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLoc
(MAINAINING -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocatio

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Branch] /\ -(branchOf;'EU-Rent'[C
      THEN INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM 'a'[Branch]*'b'[CarRentalCompany]

      (TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'[CarRentalCompany];b
PICK a,b FROM branchOf~;(I[Branch] /\ -(branchOf;'EU-Rent'[CarRentalCom
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[CarRentalCom
      THEN BLOCK
      (CANNOT CHANGE 'EU-Rent'[CarRentalCompany] FROM
PICK a,b FROM 'EU-Rent'[CarRentalCompany];('a'[CarRe
      THEN INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM 'b'[Branch]*'a'[CarRentalCompany]

      (TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'[
(MAINAINING -I[Branch] \/ branchOf;'EU-Rent'[CarRentalComp
NEW x:CarRentalCompany;
      ALL of BLOCK
      (CANNOT CHANGE 'EU-Rent'[CarRentalCompany] FROM EU
INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM 'b'[Branch]*'a'[CarRentalCompany]*'x'[

      (TO MAINTAIN -I[Branch] \/ branchOf;'EU-Rent'[Car
      (MAINAINING -I[Branch] \/ branchOf;'EU-Rent'[CarRentalCo
      (MAINAINING -I[Branch] \/ branchOf;'EU-Rent'[CarRentalComp
      (MAINAINING -I[Branch] \/ branchOf;'EU-Rent'[CarRentalCompany];br
(MAINAINING -I[Branch] \/ branchOf;'EU-Rent'[CarRentalCompany];branchOf~ FROM
NEW x:CarRentalCompany;
      ALL of INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM (I[Branch] /\ -(branchOf;'EU-Rent'[CarRentalCompany];bran

```

```

      (TO MAINTAIN  -I[Branch]  \/  branchOf;'EU-Rent'[CarRentalCompany];bran
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[CarRentalCompany] *(I[B
      THEN BLOCK
      (CANNOT CHANGE 'EU-Rent'[CarRentalCompany] FROM EURent br
      PICK a,b FROM 'EU-Rent'[CarRentalCompany];('x'[CarRentalCompan
      THEN INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM 'b'[Branch]*'a'[CarRentalCompany]

      (TO MAINTAIN  -I[Branch]  \/  branchOf;'EU-Rent'[CarRentalC
      (MAINTAINING -I[Branch]  \/  branchOf;'EU-Rent'[CarRentalCompany];bran
      (MAINTAINING -I[Branch]  \/  branchOf;'EU-Rent'[CarRentalCompany];branchOf~ FR
      (MAINTAINING -I[Branch]  \/  branchOf;'EU-Rent'[CarRentalCompany];branchOf~ FROM
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Branch] /\ -(branchOf;branchOf~))
      THEN INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM 'a'[Branch]*'b'[CarRentalCompany]

      (TO MAINTAIN  -I[Branch]  \/  branchOf;I[CarRentalCompany];branchOf~
      PICK a,b FROM branchOf~;(I[Branch] /\ -(branchOf;branchOf~))
      THEN INSERT INTO branchOf[Branch*CarRentalCompany]
      SELECTFROM 'b'[Branch]*'a'[CarRentalCompany]

      (TO MAINTAIN  -I[Branch]  \/  branchOf;I[CarRentalCompany];branchOf~
      (MAINTAINING -I[Branch]  \/  branchOf;I[CarRentalCompany];branchOf~ FROM UNI bra
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Branch] /\ -(branchLocation;branch
      THEN INSERT INTO branchLocation[Branch*Location]
      SELECTFROM 'a'[Branch]*'b'[Location]

      (TO MAINTAIN  -I[Branch]  \/  branchLocation;I[Location];branchLocat
      PICK a,b FROM branchLocation~;(I[Branch] /\ -(branchLocation;branchLoca
      THEN INSERT INTO branchLocation[Branch*Location]
      SELECTFROM 'b'[Branch]*'a'[Location]

      (TO MAINTAIN  -I[Branch]  \/  branchLocation;I[Location];branchLocat
      (MAINTAINING -I[Branch]  \/  branchLocation;I[Location];branchLocation~ FROM UNI
NEW x:Location;
      INSERT INTO branchLocation[Branch*Location]
      SELECTFROM (I[Branch] /\ -(branchLocation;branchLocation~))*'x'[Location]

      (TO MAINTAIN  -I[Branch]  \/  branchLocation;I[Location];branchLocation~ FROM
      (MAINTAINING -I[Branch]  \/  branchLocation;I[Location];branchLocation~ FROM UNI
      (MAINTAINING -branchOf  \/  branchOf;'EU-Rent'[CarRentalCompany] FROM EURent branches)
      (MAINTAINING -(branchOf~;branchOf)  \/  I[CarRentalCompany] FROM UNI branchOf::Branch*C
      (MAINTAINING -I[Branch]  \/  branchOf;branchOf~ FROM TOT branchOf::Branch*CarRentalComp
      (MAINTAINING -(branchLocation~;branchLocation)  \/  I[Location] FROM UNI branchLocation
      (MAINTAINING -I[Branch]  \/  branchLocation;branchLocation~ FROM TOT branchLocation::Br

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=Branch} EXECUTE    -- (ECA rule 108)
BLOCK
(CANNOT CHANGE V[Branch*Branch] FROM Completeness of distance table)

```

----- Derivation ----->

```

BLOCK
(CANNOT CHANGE V[Branch*Branch] FROM Completeness of distance table)

```

<-----End Derivation --

```

ON INSERT Delta IN Isn{dety=CarRentalCompany} EXECUTE    -- (ECA rule 109)
ONE OF INSERT INTO Isn{dety=CarRentalCompany}
      SELECTFROM 'EU-Rent' [CarRentalCompany];branchOf~;branchOf /\ -I[CarRentalCompany]

      (TO MAINTAIN  -( 'EU-Rent' [CarRentalCompany];branchOf~;branchOf) \/ I[CarRentalCompany])
INSERT INTO Isn{dety=CarRentalCompany}
      SELECTFROM branchOf~;branchOf;'EU-Rent' [CarRentalCompany] /\ -I[CarRentalCompany]

      (TO MAINTAIN  -(branchOf~;branchOf;'EU-Rent' [CarRentalCompany]) \/ I[CarRentalCompany])
INSERT INTO branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;'EU-Rent' [CarRentalCompany] /\ -branchOf

      (TO MAINTAIN  -(branchOf;'EU-Rent' [CarRentalCompany]) \/ branchOf FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)

```

----- Derivation ----->

```

ONE OF INSERT INTO Isn{dety=CarRentalCompany}
      SELECTFROM 'EU-Rent' [CarRentalCompany];branchOf~;branchOf /\ -I[CarRentalCompany]

      (TO MAINTAIN  -( 'EU-Rent' [CarRentalCompany];branchOf~;branchOf) \/ I[CarRentalCompany])
INSERT INTO Isn{dety=CarRentalCompany}
      SELECTFROM branchOf~;branchOf;'EU-Rent' [CarRentalCompany] /\ -I[CarRentalCompany]

      (TO MAINTAIN  -(branchOf~;branchOf;'EU-Rent' [CarRentalCompany]) \/ I[CarRentalCompany])
INSERT INTO branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;'EU-Rent' [CarRentalCompany] /\ -branchOf

      (TO MAINTAIN  -(branchOf;'EU-Rent' [CarRentalCompany]) \/ branchOf FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=CarRentalCompany} EXECUTE      -- (ECA rule 110)
ONE OF DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM -(branchOf;'EU-Rent' [CarRentalCompany]) /\ branchOf

      (TO MAINTAIN  -branchOf /\ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-'EU-Rent' [CarRentalCompany] /\ branchOf~;branchOf)

      (TO MAINTAIN  -(branchOf~;branchOf) /\ 'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-I[CarRentalCompany] /\ branchOf~;branchOf;'EU-Rent' [CarRentalCompany])

      (TO MAINTAIN  -('EU-Rent' [CarRentalCompany];branchOf~;branchOf) /\ I[CarRentalCompany]
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;'EU-Rent' [CarRentalCompany];(-I[CarRentalCompany] /\ branchOf~;branchOf;'EU-Rent' [CarRentalCompany])

      (TO MAINTAIN  -('EU-Rent' [CarRentalCompany];branchOf~;branchOf) /\ I[CarRentalCompany]
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;'EU-Rent' [CarRentalCompany];(-I[CarRentalCompany] /\ branchOf~;branchOf;'EU-Rent' [CarRentalCompany])

      (TO MAINTAIN  -(branchOf~;branchOf;'EU-Rent' [CarRentalCompany]) /\ I[CarRentalCompany]
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-I[CarRentalCompany] /\ branchOf~;branchOf;'EU-Rent' [CarRentalCompany])

      (TO MAINTAIN  -(branchOf~;branchOf;'EU-Rent' [CarRentalCompany]) /\ I[CarRentalCompany]
      DELETE FROM Isn{dety=Branch}
      SELECTFROM -(branchOf;'EU-Rent' [CarRentalCompany];branchOf~) /\ I[Branch*CarRentalCompany]

      (TO MAINTAIN  -I[Branch] /\ branchOf;'EU-Rent' [CarRentalCompany];branchOf~ FROM EURent branchOf
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-I[CarRentalCompany] /\ branchOf~;branchOf)

      (TO MAINTAIN  -(branchOf~;branchOf) /\ I[CarRentalCompany] FROM UNI branchOf
      DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM V[Branch*CarRentalCompany];Delta

      DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
      SELECTFROM Delta;V[CarRentalCompany*MaxRentalDuration]

      (MAINTAINING -branchOf /\ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      (MAINTAINING -branchOf /\ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      (MAINTAINING -branchOf /\ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      (MAINTAINING -branchOf /\ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      (MAINTAINING -branchOf /\ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branchOf
      (MAINTAINING -(branchOf~;branchOf) /\ I[CarRentalCompany] FROM UNI branchOf::Branch
      (MAINTAINING -I[Branch] /\ branchOf;branchOf~ FROM TOT branchOf::Branch*CarRentalCompany

```

----- Derivation ----->

```
ONE OF DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM -(branchOf;'EU-Rent' [CarRentalCompany]) /\ branchOf

(TO MAINTAIN  -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent br
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-'EU-Rent' [CarRentalCompany] /\ branchOf~;branchOf)

(TO MAINTAIN  -(branchOf~;branchOf) \/ 'EU-Rent' [CarRentalCompany] FROM EURent
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-I[CarRentalCompany] /\ branchOf~;branchOf;'EU-Rent' [Car

(TO MAINTAIN  -('EU-Rent' [CarRentalCompany];branchOf~;branchOf) \/ I[CarRental
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;'EU-Rent' [CarRentalCompany];(-I[CarRentalCompany] /\ 'EU-

(TO MAINTAIN  -('EU-Rent' [CarRentalCompany];branchOf~;branchOf) \/ I[CarRental
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;'EU-Rent' [CarRentalCompany];(-I[CarRentalCompany] /\ 'EU-

(TO MAINTAIN  -(branchOf~;branchOf;'EU-Rent' [CarRentalCompany]) \/ I[CarRental
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-I[CarRentalCompany] /\ branchOf~;branchOf;'EU-Rent' [Car

(TO MAINTAIN  -(branchOf~;branchOf;'EU-Rent' [CarRentalCompany]) \/ I[CarRental
DELETE FROM Isn{dety=Branch}
      SELECTFROM -(branchOf;'EU-Rent' [CarRentalCompany];branchOf~) /\ I[Branch]

(TO MAINTAIN  -I[Branch] \/ branchOf;'EU-Rent' [CarRentalCompany];branchOf~ FROM
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM branchOf;(-I[CarRentalCompany] /\ branchOf~;branchOf)

(TO MAINTAIN  -(branchOf~;branchOf) \/ I[CarRentalCompany] FROM UNI branchOf::
DELETE FROM branchOf [Branch*CarRentalCompany]
      SELECTFROM V[Branch*CarRentalCompany];Delta

DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
      SELECTFROM Delta;V[CarRentalCompany*MaxRentalDuration]

(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -branchOf \/ branchOf;'EU-Rent' [CarRentalCompany] FROM EURent branches)
(MAINTAINING -(branchOf~;branchOf) \/ I[CarRentalCompany] FROM UNI branchOf::Branch*C
(MAINTAINING -I[Branch] \/ branchOf;branchOf~ FROM TOT branchOf::Branch*CarRentalComp
```

<-----End Derivation --

```
ON DELETE Delta FROM Isn{dety=Date} EXECUTE    -- (ECA rule 112)
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rcStartDate;(-I[Date] /\ rcStartDate~;rcStartDate)

      (TO MAINTAIN  -(rcStartDate~;rcStartDate) /\ I[Date] FROM UNI rcStartDate
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rcEndDate;(-I[Date] /\ rcEndDate~;rcEndDate)

      (TO MAINTAIN  -(rcEndDate~;rcEndDate) /\ I[Date] FROM UNI rcEndDate::Rent
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM rcDroppedOffDate;(-I[Date] /\ rcDroppedOffDate~;rcDroppedOffD

      (TO MAINTAIN  -(rcDroppedOffDate~;rcDroppedOffDate) /\ I[Date] FROM UNI r
DELETE FROM earliestDate[CompNrDays*Date]
      SELECTFROM earliestDate;(-I[Date] /\ earliestDate~;earliestDate)

      (TO MAINTAIN  -(earliestDate~;earliestDate) /\ I[Date] FROM UNI earliestD
DELETE FROM latestDate[CompNrDays*Date]
      SELECTFROM latestDate;(-I[Date] /\ latestDate~;latestDate)

      (TO MAINTAIN  -(latestDate~;latestDate) /\ I[Date] FROM UNI latestDate::C
DELETE FROM firstDate[CompNrExcessDays*Date]
      SELECTFROM firstDate;(-I[Date] /\ firstDate~;firstDate)

      (TO MAINTAIN  -(firstDate~;firstDate) /\ I[Date] FROM UNI firstDate::Comp
DELETE FROM lastDate[CompNrExcessDays*Date]
      SELECTFROM lastDate;(-I[Date] /\ lastDate~;lastDate)

      (TO MAINTAIN  -(lastDate~;lastDate) /\ I[Date] FROM UNI lastDate::CompNrE
DELETE FROM sessionToday[SESSION*Date]
      SELECTFROM sessionToday;(-I[Date] /\ sessionToday~;sessionToday)

      (TO MAINTAIN  -(sessionToday~;sessionToday) /\ I[Date] FROM UNI sessionTo
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM V[RentalContract*Date];Delta

DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM V[RentalContract*Date];Delta

DELETE FROM dateIntervalIsWithinMaxRentalDuration[Date*Date]
      SELECTFROM Delta;V[Date*Date]

DELETE FROM dateIntervalIsWithinMaxRentalDuration[Date*Date]
      SELECTFROM V[Date*Date];Delta

DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM V[RentalContract*Date];Delta
```

```
DELETE FROM dateIntervalCompTrigger[Date*Date]
SELECTFROM Delta;V[Date*Date]
```

```
DELETE FROM dateIntervalCompTrigger[Date*Date]
SELECTFROM V[Date*Date];Delta
```

```
DELETE FROM earliestDate[CompNrDays*Date]
SELECTFROM V[CompNrDays*Date];Delta
```

```
DELETE FROM latestDate[CompNrDays*Date]
SELECTFROM V[CompNrDays*Date];Delta
```

```
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM V[CompNrExcessDays*Date];Delta
```

```
DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM V[CompNrExcessDays*Date];Delta
```

```
DELETE FROM sessionToday[SESSION*Date]
SELECTFROM V[SESSION*Date];Delta
```

```
(MAINTAINING -(rcStartDate~;rcStartDate) \/ I[Date] FROM UNI rcStartDate::Rental
(MAINTAINING -(rcEndDate~;rcEndDate) \/ I[Date] FROM UNI rcEndDate::RentalContra
(MAINTAINING -(rcDroppedOffDate~;rcDroppedOffDate) \/ I[Date] FROM UNI rcDropped
(MAINTAINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::Comp
(MAINTAINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate:
(MAINTAINING -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDay
(MAINTAINING -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompN
(MAINTAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcess
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::Co
(MAINTAINING -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcessDay
(MAINTAINING -I[CompNrExcessDays] \/ lastDate;lastDate~ FROM TOT lastDate::CompN
(MAINTAINING -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionToday::SES
```

----- Derivation ----->

```
ONE OF DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM rcStartDate;(-I[Date] /\ rcStartDate~;rcStartDate)
```

```
(TO MAINTAIN -(rcStartDate~;rcStartDate) \/ I[Date] FROM UNI rcStartDate::Ren
DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM rcEndDate;(-I[Date] /\ rcEndDate~;rcEndDate)
```

```
(TO MAINTAIN -(rcEndDate~;rcEndDate) \/ I[Date] FROM UNI rcEndDate::RentalCon
DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM rcDroppedOffDate;(-I[Date] /\ rcDroppedOffDate~;rcDroppedOffDate)
```

```

(TO MAINTAIN -(rcDroppedOffDate~;rcDroppedOffDate) \/ I[Date] FROM UNI rcDrop
DELETE FROM earliestDate[CompNrDays*Date]
SELECTFROM earliestDate;(-I[Date] /\ earliestDate~;earliestDate)

(TO MAINTAIN -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::
DELETE FROM latestDate[CompNrDays*Date]
SELECTFROM latestDate;(-I[Date] /\ latestDate~;latestDate)

(TO MAINTAIN -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNr
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM firstDate;(-I[Date] /\ firstDate~;firstDate)

(TO MAINTAIN -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExc
DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM lastDate;(-I[Date] /\ lastDate~;lastDate)

(TO MAINTAIN -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcess
DELETE FROM sessionToday[SESSION*Date]
SELECTFROM sessionToday;(-I[Date] /\ sessionToday~;sessionToday)

(TO MAINTAIN -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionToday::
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM V[RentalContract*Date];Delta

DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM V[RentalContract*Date];Delta

DELETE FROM dateIntervalIsWithinMaxRentalDuration[Date*Date]
SELECTFROM Delta;V[Date*Date]

DELETE FROM dateIntervalIsWithinMaxRentalDuration[Date*Date]
SELECTFROM V[Date*Date];Delta

DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM V[RentalContract*Date];Delta

DELETE FROM dateIntervalCompTrigger[Date*Date]
SELECTFROM Delta;V[Date*Date]

DELETE FROM dateIntervalCompTrigger[Date*Date]
SELECTFROM V[Date*Date];Delta

DELETE FROM earliestDate[CompNrDays*Date]
SELECTFROM V[CompNrDays*Date];Delta

DELETE FROM latestDate[CompNrDays*Date]
SELECTFROM V[CompNrDays*Date];Delta

DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM V[CompNrExcessDays*Date];Delta

```



```

DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM V[CompNrExcessDays*Date];Delta

DELETE FROM sessionToday[SESSION*Date]
SELECTFROM V[SESSION*Date];Delta

(MAINTEINING -(rcStartDate~;rcStartDate) \/ I[Date] FROM UNI rcStartDate::RentalContr
(MAINTEINING -(rcEndDate~;rcEndDate) \/ I[Date] FROM UNI rcEndDate::RentalContract*Da
(MAINTEINING -(rcDroppedOffDate~;rcDroppedOffDate) \/ I[Date] FROM UNI rcDroppedOffDa
(MAINTEINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDa
(MAINTEINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate::Comp
(MAINTEINING -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDays*Dat
(MAINTEINING -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNrDays
(MAINTEINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays*
(MAINTEINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrE
(MAINTEINING -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcessDays*Dat
(MAINTEINING -I[CompNrExcessDays] \/ lastDate;lastDate~ FROM TOT lastDate::CompNrExce
(MAINTEINING -(sessionToday~;sessionToday) \/ I[Date] FROM UNI sessionToday::SESSION*

<-----End Derivation --

```

```

ON INSERT Delta IN Isn{detyr=RentalContract} EXECUTE    -- (ECA rule 113)
ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcPickupBranch~;(I[Rent
    THEN INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'b'[Car]*'a'[Branch]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\
PICK a,b FROM carAvailableAt;(rcPickupBranch~;(I[RentalCont
    THEN INSERT INTO carType[Car*CarType]
        SELECTFROM 'a'[Car]*'b'[CarType]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\
(MAINTEINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSta
NEW x:Car;
    ALL of INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'x'[Car]*(rcCarType~;(I[RentalContract] /\ -r

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -re
INSERT INTO carType[Car*CarType]
        SELECTFROM 'x'[Car]*(rcPickupBranch~;(I[RentalContract]

        (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -re
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasS
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasSta
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);r
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'
    THEN INSERT INTO rcDriver[RentalContract*Person]

```

```

SELECTFROM 'a' [RentalContract]*'b' [Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysH
PICK a,b FROM rcDriver~;(rcKeysHandedOverQ;'Yes' [YesNo];rcK
THEN INSERT INTO rcDriver[RentalContract*Person]
SELECTFROM 'b' [RentalContract]*'a' [Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysH
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /
NEW x:Person;
INSERT INTO rcDriver[RentalContract*Person]
SELECTFROM (rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ I [Ren
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'
THEN INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM 'a' [RentalContract]*'b' [Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysH
PICK a,b FROM rcRenter~;(rcKeysHandedOverQ;'Yes' [YesNo];rcK
THEN INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM 'b' [RentalContract]*'a' [Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysH
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /
NEW x:Person;
INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM (rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /
(MAINTAINING -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ I [Ren
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIssued

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes' [YesNo];rcKeysHandedOverQ~ /\ rcIs
INSERT INTO rentalHasEnded[RentalContract*RentalContract]
SELECTFROM rentalIsPaidQ;'Yes' [YesNo];rentalIsPaidQ~ /\ rcDroppedOffBran

(TO MAINTAIN -(rentalIsPaidQ;'Yes' [YesNo];rentalIsPaidQ~ /\ rcDroppedOff
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalIsPaidQ;'Yes' [Yes
THEN INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM 'a' [RentalContract]*'b' [Amount]

(TO MAINTAIN -(rentalIsPaidQ;'Yes' [YesNo];rentalIsPa
PICK a,b FROM rentalCharge~;(rentalIsPaidQ;'Yes' [YesNo];ren
THEN INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM 'b' [RentalContract]*'a' [Amount]

```

```

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
(MAINAINING  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
NEW x:Amount;
        INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[R
        (MAINAINING  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
(MAINAINING  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContr
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcMaxRentalDuration;rcM
        THEN INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~;
PICK a,b FROM rcStartDate~;(rcMaxRentalDuration;rcMaxRental
        THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[
        THEN INSERT INTO dateIntervalCompTrigger
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration
PICK a,b FROM dateIntervalCompTrigger~;(
        THEN INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration
(MAINAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~
NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date]
        SELECTFROM 'a'[Date]*'b'[RentalContract*Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~
(MAINAINING  -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate
NEW x:Date;
        ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM (rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDa

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Date]
        THEN INSERT INTO dateIntervalCompTrigger[Date]
        SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN  -(rcMaxRentalDuration;rcMaxRentalDuration~

```

```

        PICK a,b FROM dateIntervalCompTrigger~;('x'
        THEN INSERT INTO rcEndDate[RentalContract*Date]
            SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration)
        NEW x:Date;
        ALL of INSERT INTO dateIntervalCompTrigger[Date*Amount]
            SELECTFROM 'x'[Date]*(rcMaxRentalDuration;rcMaxRentalDuration)

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration)
        INSERT INTO rcEndDate[RentalContract*Date]
            SELECTFROM (rcMaxRentalDuration;rcMaxRentalDuration)

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate)
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate)
        ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[RentalContract])
            THEN INSERT INTO rentalBasicCharge[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        PICK a,b FROM rentalBasicCharge~;('a'[RentalContract]*'b'[RentalContract])
        THEN INSERT INTO arg1[CompRentalCharge*Amount]
            SELECTFROM 'b'[CompRentalCharge]*'a'[CompRentalCharge]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        NEW x:Amount;
        ALL of INSERT INTO rentalBasicCharge[RentalContract*Amount]
            SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        INSERT INTO arg1[CompRentalCharge*Amount]
            SELECTFROM 'b'[CompRentalCharge]*'a'[CompRentalCharge]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]*'b'[RentalContract])
            THEN INSERT INTO rentalPenaltyCharge[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge)

```

```

PICK a,b FROM rentalPenaltyCharge~;('a' [
THEN INSERT INTO arg2[CompRentalCharge*Am
SELECTFROM 'b' [CompRentalCharge]*'.

(TO MAINTAIN -(rentalLocationPenal
(MAINTAINING -(rentalLocationPenaltyCharge;rent
NEW x:Amount;
ALL of INSERT INTO rentalPenaltyCharge[Rental
SELECTFROM 'a' [RentalContract]*'b' [Con

(TO MAINTAIN -(rentalLocationPenaltyC
INSERT INTO arg2[CompRentalCharge*Amou
SELECTFROM 'b' [CompRentalCharge]*'a' [

(TO MAINTAIN -(rentalLocationPenaltyC
(MAINTAINING -(rentalLocationPenaltyCharge;re
(MAINTAINING -(rentalLocationPenaltyCharge;rent
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocat
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [
THEN INSERT INTO rentalLocationPenaltyCh
SELECTFROM 'a' [RentalContract]*'b'

(TO MAINTAIN -(rentalLocationPenal
PICK a,b FROM rentalLocationPenaltyCharge
THEN INSERT INTO arg3[CompRentalCharge*Am
SELECTFROM 'b' [CompRentalCharge]*'.

(TO MAINTAIN -(rentalLocationPenal
(MAINTAINING -(rentalLocationPenaltyCharge;rent
NEW x:Amount;
ALL of INSERT INTO rentalLocationPenaltyCharg
SELECTFROM 'a' [RentalContract]*'b' [Con

(TO MAINTAIN -(rentalLocationPenaltyC
INSERT INTO arg3[CompRentalCharge*Amou
SELECTFROM 'b' [CompRentalCharge]*'a' [

(TO MAINTAIN -(rentalLocationPenaltyC
(MAINTAINING -(rentalLocationPenaltyCharge;re
(MAINTAINING -(rentalLocationPenaltyCharge;rent
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocat
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenal
PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge
THEN BLOCK
(CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Trigg
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcDroppedOffDate;rcDroppedOffD
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [
THEN INSERT INTO rcStartDate[RentalContr
SELECTFROM 'a' [RentalContract]*'b'

```



```

PICK a,b FROM carType~;(
THEN ONE OF ONE NONEMPTY
THEN

PICK
THEN

(MAINTAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

(TO
(MAINTAINING
(MAINTAINING
(MAINTAINING -(rcIss
(MAINTAINING -(rcIssuedCar;rcIss
NEW x:CarType;
ALL of INSERT INTO carType[Car
SELECTFROM 'x'[Car]*',

(TO MAINTAIN -(rcIssu
ONE OF ONE NONEMPTY AL
THEN INS
SE

(TO
PICK a,b
THEN INS
SE

(TO
(MAINTAINING -(
NEW x:Amount;
ALL of INSERT
SELEC

(TO MA
INSERT
SELEC

(TO MA

```


THEN ONE OF ONE NONEMPTY
THEN

PICK
THEN

(MAINTAINING
NEW x:Amount
ALL of

(MAINTAINING
(MAINTAINING
(MAINTAINING -(rentalExcessP
(MAINTAINING -(rentalExcessP
NEW x:CarType;
ALL of INSERT INTO carType
SELECTFROM 'a'[Car

(TO MAINTAIN -(rent
ONE OF ONE NONEMPTY
THEN

PICK
THEN

(MAINTAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

(TO
(MAINTAINING

```

(MAINAINING
(MAINAINING -(rent.
(MAINAINING -(rentalExces
(MAINAINING -(rentalExcessP
(MAINAINING -(rentalExcessPeriod;r
(MAINAINING -(rentalExcessPeriod;rentalExcessP
NEW x:Car;
ALL of INSERT INTO rcIssuedCar[RentalContract
SELECTFROM 'a'[RentalContract]*'b'[Con

(TO MAINTAIN -(rentalExcessPeriod;ren
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK
THEN INSERT INTO carType
SELECTFROM 'a'[Car

(TO MAINTAIN -(ren
PICK a,b FROM carType~;(
THEN ONE OF ONE NONEMPTY
THEN

PICK .
THEN

(MAINAINING
NEW x:Amount
ALL of INS
SE

(TO
INS
SE

(TO
(MAINAINI
(MAINAINING
(MAINAINING -(rent.
(MAINAINING -(rentalExcessPeri
NEW x:CarType;
ALL of INSERT INTO carType[Car
SELECTFROM 'x'[Car]*'

(TO MAINTAIN -(rental.
ONE OF ONE NONEMPTY AL
THEN INS
SE

```



```

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffD
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDat
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a' [
        THEN INSERT INTO rcDroppedOffDate[Rental
        SELECTFROM 'a' [RentalContract]*'b'

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        PICK a,b FROM rcDroppedOffDate~;('a' [Ren
        THEN INSERT INTO lastDate[CompNrExcessDays*
        SELECTFROM 'b' [CompNrExcessDays]*'.

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDat
        NEW x:Date;
        ALL of INSERT INTO rcDroppedOffDate[RentalCon
        SELECTFROM 'a' [RentalContract]*'b' [Con

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        INSERT INTO lastDate[CompNrExcessDays*
        SELECTFROM 'b' [CompNrExcessDays]*'a' [

        (TO MAINTAIN -(rcDroppedOffDate;rcDro
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffD
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDat
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ r
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate
        PICK a,b FROM (firstDate;rcEndDate~ /\ lastDate;rcDroppedOffDate~)
        THEN BLOCK
        (CANNOT CHANGE V[CompNrExcessDays*RentalContract] FROM Triggers
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rc
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]))\
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rental
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\
        (MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalContract]
        (MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract])) \
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[R

```

----- Derivation ----->

ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType

```

THEN INSERT INTO carAvailableAt[Car*Branch]
    SELECTFROM 'b'[Car]*'a'[Branch]

    (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rent
PICK a,b FROM carAvailableAt;(rcPickupBranch~;(I[RentalContract]
THEN INSERT INTO carType[Car*CarType]
    SELECTFROM 'a'[Car]*'b'[CarType]

    (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rent
(MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
NEW x:Car;
    ALL of INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM 'x'[Car]*(rcCarType~;(I[RentalContract] /\ -rentalH
    (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalH
    INSERT INTO carType[Car*CarType]
        SELECTFROM 'x'[Car]*(rcPickupBranch~;(I[RentalContract] /\ -r

    (TO MAINTAIN -(rcPickupBranch~;(I[RentalContract] /\ -rentalH
    (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarte
    (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted)
    (MAINTAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarT
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'[YesN
    THEN INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM 'a'[RentalContract]*'b'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
PICK a,b FROM rcDriver~;(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHa
THEN INSERT INTO rcDriver[RentalContract*Person]
    SELECTFROM 'b'[RentalContract]*'a'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
NEW x:Person;
    INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'[YesN
    THEN INSERT INTO rcRenter[RentalContract*Person]
        SELECTFROM 'a'[RentalContract]*'b'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded
PICK a,b FROM rcRenter~;(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHa
THEN INSERT INTO rcRenter[RentalContract*Person]
    SELECTFROM 'b'[RentalContract]*'a'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHanded

```

```

(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
NEW x:Person;
INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[R
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCo
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;r

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedC
INSERT INTO rentalHasEnded[RentalContract*RentalContract]
SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rc

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranc
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalIsPaidQ;'Yes'[YesNo];r
THEN INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[Amount]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
PICK a,b FROM rentalCharge~;(rentalIsPaidQ;'Yes'[YesNo];rentalIs
THEN INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM 'b'[RentalContract]*'a'[Amount]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCon
NEW x:Amount;
INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCon

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rental
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCon
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract])
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcMaxRentalDuration;rcMaxRen
THEN INSERT INTO rcStartDate[RentalContract*Date]
SELECTFROM 'a'[RentalContract]*'b'[Date]

(TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
PICK a,b FROM rcStartDate~;(rcMaxRentalDuration;rcMaxRentalDurat
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Date]
THEN INSERT INTO dateIntervalCompTrigger[Date]
SELECTFROM 'a'[Date]*'b'[Date]

(TO MAINTAIN -(rcMaxRentalDuration;rcMa
PICK a,b FROM dateIntervalCompTrigger~;('a'[D
THEN INSERT INTO rcEndDate[RentalContract*Dat
SELECTFROM 'b'[RentalContract]*'a'[Date]

(TO MAINTAIN -(rcMaxRentalDuration;rcMa

```



```

(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDurati
NEW x:Date;
    ALL of INSERT INTO dateIntervalCompTrigger[Date*Da
        SELECTFROM 'a'[Date]*'b'[RentalContract]*'

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM 'b'[RentalContract]*'a'[Date]*'

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDura
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDurati
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
NEW x:Date;
    ALL of INSERT INTO rcStartDate[RentalContract*Date]
        SELECTFROM (rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEnd

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rc
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[Date]*('r
        THEN INSERT INTO dateIntervalCompTrigger[Date*Da
            SELECTFROM 'a'[Date]*'b'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
        PICK a,b FROM dateIntervalCompTrigger~;'x'[Date]
        THEN INSERT INTO rcEndDate[RentalContract*Date]
            SELECTFROM 'b'[RentalContract]*'a'[Date]

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRe
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
NEW x:Date;
    ALL of INSERT INTO dateIntervalCompTrigger[Date*Date]
        SELECTFROM 'x'[Date]*(rcMaxRentalDuration;rcM

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRenta
INSERT INTO rcEndDate[RentalContract*Date]
        SELECTFROM (rcMaxRentalDuration;rcMaxRentalDu

        (TO MAINTAIN -(rcMaxRentalDuration;rcMaxRenta
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuratio
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcE
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;
        (MAINTAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rc
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalLocationPenaltyCharge;rentalL
    THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
        THEN INSERT INTO rentalBasicCharge[RentalCont
            SELECTFROM 'a'[RentalContract]*'b'[Amou

```

```

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
PICK a,b FROM rentalBasicCharge~;('a'[RentalContract]
THEN INSERT INTO arg1[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
NEW x:Amount;
        ALL of INSERT INTO rentalBasicCharge[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
INSERT INTO arg1[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rentalPenaltyCharge[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
PICK a,b FROM rentalPenaltyCharge~;('a'[RentalContract]
THEN INSERT INTO arg2[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
NEW x:Amount;
        ALL of INSERT INTO rentalPenaltyCharge[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
INSERT INTO arg2[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract]
THEN INSERT INTO rentalLocationPenaltyCharge[RentalContract]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLoc
PICK a,b FROM rentalLocationPenaltyCharge~;('a'[RentalContract]
THEN INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract]

```

```

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
NEW x:Amount;
    ALL of INSERT INTO rentalLocationPenaltyCharge[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[CompRentalCharge*Amount]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[RentalContract*Amount]

        (TO MAINTAIN -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
        (MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\
        PICK a,b FROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\
        THEN BLOCK
            (CANNOT CHANGE V[CompRentalCharge*RentalContract] FROM Trigger rentalLocationPenaltyCharge~ /\
(MAINTAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalLocationPenaltyCharge~ /\
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcDroppedOffDate;rcDroppedOffDate~ /\
        THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Amount]
            THEN INSERT INTO rcStartDate[RentalContract*Amount]
                SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
        PICK a,b FROM rcStartDate~;('a'[RentalContract*Amount]
        THEN INSERT INTO earliestDate[CompNrDays*Date]
            SELECTFROM 'b'[CompNrDays]*'a'[Date]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
(MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
    ALL of INSERT INTO rcStartDate[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[CompNrDays*Date]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
        INSERT INTO earliestDate[CompNrDays*Date]
            SELECTFROM 'b'[CompNrDays]*'a'[RentalContract*Amount]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        (MAINTAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Amount]
        THEN INSERT INTO rcDroppedOffDate[RentalContract*Amount]
            SELECTFROM 'a'[RentalContract]*'b'[Date]

        (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
        PICK a,b FROM rcDroppedOffDate~;('a'[RentalContract*Amount]

```

```

THEN INSERT INTO latestDate[CompNrDays*Date]
      SELECTFROM 'b'[CompNrDays]*'a'[Date]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
      ALL of INSERT INTO rcDroppedOffDate[RentalContract*Int]
      SELECTFROM 'a'[RentalContract]*'b'[CompNrDays*Date]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
INSERT INTO latestDate[CompNrDays*Date]
      SELECTFROM 'b'[CompNrDays]*'a'[RentalContract*Int]

      (TO MAINTAIN -(rcDroppedOffDate;rcDroppedOffDate~ /\
      (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
      (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\
      (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\
PICK a,b FROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate~ /\
THEN BLOCK
      (CANNOT CHANGE V[CompNrDays*RentalContract] FROM Trigger rental period
      (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rcIssuedCar~ /\
      THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Int]
      THEN INSERT INTO rentalPeriod[RentalContract*Int]
      SELECTFROM 'a'[RentalContract]*'b'[CompNrDays*Date]

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
PICK a,b FROM rentalPeriod~;('a'[RentalContract*Int]
      THEN INSERT INTO ctcNrOfDays[CompTariffedCharge*Int]
      SELECTFROM 'b'[CompTariffedCharge]*'a'[RentalContract*Int]

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
      (MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rcIssuedCar~ /\
NEW x:Integer;
      ALL of INSERT INTO rentalPeriod[RentalContract*Int]
      SELECTFROM 'a'[RentalContract]*'b'[CompNrDays*Date]

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
INSERT INTO ctcNrOfDays[CompTariffedCharge*Int]
      SELECTFROM 'b'[CompTariffedCharge]*'a'[RentalContract*Int]

      (TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
      (MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rcIssuedCar~ /\
      (MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rcIssuedCar~ /\
      (MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rcIssuedCar~ /\
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContract*Int]
      THEN INSERT INTO rcIssuedCar[RentalContract*Int]
      SELECTFROM 'a'[RentalContract]*'b'[CompNrDays*Date]

```

```

        (TO MAINTAIN  -(rcIssuedCar;rcIssuedCar~
PICK a,b FROM rcIssuedCar~;('a'[RentalContract
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK
        THEN INSERT INTO carType[C
        SELECTFROM 'a'[Car]*

        (TO MAINTAIN  -(rcIss
PICK a,b FROM carType~;('a
THEN ONE OF ONE NONEMPTY A
        THEN IN
        S

        (T
        PICK a,
        THEN IN
        S

        (T
        (MAINTAINING -
        NEW x:Amount;
        ALL of INSERT
        SELE

        (TO M
        INSERT
        SELE

        (TO M
        (MAINTAINING
        (MAINTAINING -
        (MAINTAINING -(rcIssu
        (MAINTAINING -(rcIssuedCar;rcIssu
        NEW x:CarType;
        ALL of INSERT INTO carType[Car*
        SELECTFROM 'a'[Car]*'b'

        (TO MAINTAIN  -(rcIssued
        ONE OF ONE NONEMPTY ALTE
        THEN INSERT
        SELE

        (TO M
        PICK a,b F
        THEN INSERT
        SELE

        (TO M
        (MAINTAINING -(rc
        NEW x:Amount;
        ALL of INSERT I

```

```

SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINAINING -(
(MAINAINING -(rc
(MAINAINING -(rcIssuedC
(MAINAINING -(rcIssuedCar;rcIs
(MAINAINING -(rcIssuedCar;rcIssu
(MAINAINING -(rcIssuedCar;rcIssuedCar~
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
NEW x:Car;
ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
SELECTFROM 'a'[RentalContract]*'b'[CompTar

(TO MAINTAIN -(rcIssuedCar;rcIssuedCar~ /\
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b
THEN INSERT INTO carType[Car*
SELECTFROM 'a'[Car]*'b'

(TO MAINTAIN -(rcIssued
PICK a,b FROM carType~;'x'[C
THEN ONE OF ONE NONEMPTY ALTE
THEN INSE
SELE

(TO M
PICK a,b F
THEN INSE
SELE

(TO M
(MAINAINING -(rc
NEW x:Amount;
ALL of INSERT I
SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINAINING -(
(MAINAINING -(rc
(MAINAINING -(rcIssuedC
(MAINAINING -(rcIssuedCar;rcIssuedC
NEW x:CarType;

```

```

ALL of INSERT INTO carType[Car*Car
SELECTFROM 'x'[Car]*'a'[Re

(TO MAINTAIN -(rcIssuedCar
ONE OF ONE NONEMPTY ALTERNA
THEN INSERT I
SELECTF

(TO MAIN
PICK a,b FROM
THEN INSERT I
SELECTF

(TO MAIN
(MAINTAINING -(rcIss
NEW x:Amount;
ALL of INSERT INTO
SELECTFROM

(TO MAINTAI
INSERT INTO
SELECTFROM

(TO MAINTAI
(MAINTAINING -(rcI
(MAINTAINING -(rcIss
(MAINTAINING -(rcIssuedCar;
(MAINTAINING -(rcIssuedCar;rcIssue
(MAINTAINING -(rcIssuedCar;rcIssuedC
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalP
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPer
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;ren
PICK a,b FROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariff
THEN BLOCK
(CANNOT CHANGE V[CompTariffedCharge*RentalContract] FROM Trigger r
(MAINTAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[Ren
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalExcessPeriod;rentalExcessPeri
THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
THEN INSERT INTO rentalExcessPeriod[RentalCon
SELECTFROM 'a'[RentalContract]*'b'[Inte

(TO MAINTAIN -(rentalExcessPeriod;renta
PICK a,b FROM rentalExcessPeriod~;('a'[Rental
THEN INSERT INTO ctcNrOfDays[CompTariffedChar
SELECTFROM 'b'[CompTariffedCharge]*'a'[

(TO MAINTAIN -(rentalExcessPeriod;renta
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod

```



```

SELECTFROM 'a'[Car]*'b'

(TO MAINTAIN -(rentalEx
ONE OF ONE NONEMPTY ALTE
THEN INSE
SELE

(TO M
PICK a,b F
THEN INSE
SELE

(TO M
(MAINTAINING -(re
NEW x:Amount;
ALL of INSERT I
SELECTF

(TO MAIN
INSERT I
SELECTF

(TO MAIN
(MAINTAINING -(
(MAINTAINING -(re
(MAINTAINING -(rentalExc
(MAINTAINING -(rentalExcessPeri
(MAINTAINING -(rentalExcessPeriod;rental
(MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod
NEW x:Car;
ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
SELECTFROM 'a'[RentalContract]*'b'[CompTar

(TO MAINTAIN -(rentalExcessPeriod;rentalEx
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b
THEN INSERT INTO carType[Car*
SELECTFROM 'a'[Car]*'b'

(TO MAINTAIN -(rentalEx
PICK a,b FROM carType~;'x'[C
THEN ONE OF ONE NONEMPTY ALTE
THEN INSE
SELE

(TO M
PICK a,b F
THEN INSE
SELE

```

```

                                (TO MAIN
                                (MAINTAINING -(re
                                NEW x:Amount;
                                ALL of INSERT I
                                SELECTF

                                (TO MAIN
                                INSERT I
                                SELECTF

                                (TO MAIN
                                (MAINTAINING -(
                                (MAINTAINING -(re
                                (MAINTAINING -(rentalExc
                                (MAINTAINING -(rentalExcessPeriod;re
                                NEW x:CarType;
                                ALL of INSERT INTO carType[Car*Car
                                SELECTFROM 'x'[Car]*'a'[Re

                                (TO MAINTAIN -(rentalExces
                                ONE OF ONE NONEMPTY ALTERNA
                                THEN INSERT I
                                SELECTF

                                (TO MAIN
                                PICK a,b FROM
                                THEN INSERT I
                                SELECTF

                                (TO MAIN
                                (MAINTAINING -(renta
                                NEW x:Amount;
                                ALL of INSERT INTO
                                SELECTFROM

                                (TO MAINTAI
                                INSERT INTO
                                SELECTFROM

                                (TO MAINTAI
                                (MAINTAINING -(ren
                                (MAINTAINING -(renta
                                (MAINTAINING -(rentalExcess
                                (MAINTAINING -(rentalExcessPeriod;
                                (MAINTAINING -(rentalExcessPeriod;re
                                (MAINTAINING -(rentalExcessPeriod;rentalExc
                                (MAINTAINING -(rentalExcessPeriod;rentalExcessPeri
                                (MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod
                                (MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[
                                (MAINTAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalC

```

```

PICK a,b FROM (ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excess
THEN BLOCK
      (CANNOT CHANGE V[CompTariffedCharge*RentalContract] FROM Trigger e
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) /\
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcDroppedOffDate;rcDroppedOffDate~
      THEN ALL of ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
          THEN INSERT INTO rcEndDate[RentalContract*Date]
          SELECTFROM 'a'[RentalContract]*'b'[Date]

          (TO MAINTAIN -(rcDroppedOffDate;rcDropp
PICK a,b FROM rcEndDate~;('a'[RentalContract]
      THEN INSERT INTO firstDate[CompNrExcessDays*D
          SELECTFROM 'b'[CompNrExcessDays]*'a'[Da

          (TO MAINTAIN -(rcDroppedOffDate;rcDropp
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
      ALL of INSERT INTO rcEndDate[RentalContract*Date]
          SELECTFROM 'a'[RentalContract]*'b'[CompNrE

          (TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
INSERT INTO firstDate[CompNrExcessDays*Date]
          SELECTFROM 'b'[CompNrExcessDays]*'a'[Renta

          (TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
          (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~
          (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndD
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[Renta
      THEN INSERT INTO rcDroppedOffDate[RentalContr
          SELECTFROM 'a'[RentalContract]*'b'[Date]

          (TO MAINTAIN -(rcDroppedOffDate;rcDropp
PICK a,b FROM rcDroppedOffDate~;('a'[RentalCo
      THEN INSERT INTO lastDate[CompNrExcessDays*Da
          SELECTFROM 'b'[CompNrExcessDays]*'a'[Da

          (TO MAINTAIN -(rcDroppedOffDate;rcDropp
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\
NEW x:Date;
      ALL of INSERT INTO rcDroppedOffDate[RentalContract]
          SELECTFROM 'a'[RentalContract]*'b'[CompNrE

          (TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
INSERT INTO lastDate[CompNrExcessDays*Date]
          SELECTFROM 'b'[CompNrExcessDays]*'a'[Renta

          (TO MAINTAIN -(rcDroppedOffDate;rcDroppedO
          (MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\

```

```

(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I
PICK a,b FROM (firstDate;rcEndDate~ /\ lastDate;rcDroppedOffDate~);(rcD
THEN BLOCK
(CANNOT CHANGE V[CompNrExcessDays*RentalContract] FROM Trigger exc
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I
(MAINAINING -(rcPickupBranch~;(I[RentalContract] /\ -rentalHasStarted);rcCarType) /\
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) /\ ren
(MAINAINING -(rcMaxRentalDuration;rcMaxRentalDuration~ /\ rcEndDate;rcEndDate~ /\ rc
(MAINAINING -(rentalLocationPenaltyCharge;rentalLocationPenaltyCharge~ /\ rentalPena
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcStartDate;rcStartDate~ /\ I[Re
(MAINAINING -(rcIssuedCar;rcIssuedCar~ /\ rentalPeriod;rentalPeriod~ /\ I[RentalCont
(MAINAINING -(rentalExcessPeriod;rentalExcessPeriod~ /\ I[RentalContract]) /\ (renta
(MAINAINING -(rcDroppedOffDate;rcDroppedOffDate~ /\ rcEndDate;rcEndDate~ /\ I[Rental

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=RentalContract} EXECUTE -- (ECA rule 114)
ALL of DELETE FROM sessionRC[SESSION*RentalContract]
SELECTFROM -(sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch)

(TO MAINTAIN -sessionRC /\ sessionRC;(I[RentalContract] /\ rcPickupBranch)
(TO MAINTAIN -(sessionRC~;sessionRC) /\ (I[RentalContract] /\ rcPickupBranch)
(TO MAINTAIN -(sessionRC~;sessionRC) /\ I[RentalContract] FROM UNI sessionRC
DELETE FROM rcStartDate[RentalContract*Date]
SELECTFROM Delta;V[RentalContract*Date]

DELETE FROM rcEndDate[RentalContract*Date]
SELECTFROM Delta;V[RentalContract*Date]

DELETE FROM rcCarType[RentalContract*CarType]
SELECTFROM Delta;V[RentalContract*CarType]

DELETE FROM rcPickupBranch[RentalContract*Branch]
SELECTFROM Delta;V[RentalContract*Branch]

DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM Delta;V[RentalContract*Branch]

DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM Delta;V[RentalContract*Person]

DELETE FROM rcDriver[RentalContract*Person]
SELECTFROM Delta;V[RentalContract*Person]

```

```

DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM Delta;V[RentalContract*YesNo]

DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM Delta;V[RentalContract*Car]

DELETE FROM rentalHasStarted[RentalContract*RentalContract]
SELECTFROM Delta;V[RentalContract*RentalContract] \ / V[RentalContract*Re

DELETE FROM rcDroppedOffCar[RentalContract*Car]
SELECTFROM Delta;V[RentalContract*Car]

DELETE FROM rcDroppedOffDate[RentalContract*Date]
SELECTFROM Delta;V[RentalContract*Date]

DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
SELECTFROM Delta;V[RentalContract*Branch]

DELETE FROM rentalHasEnded[RentalContract*RentalContract]
SELECTFROM Delta;V[RentalContract*RentalContract] \ / V[RentalContract*Re

DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
SELECTFROM Delta;V[RentalContract*YesNo]

DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM Delta;V[RentalContract*Integer]

DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM Delta;V[RentalContract*Integer]

DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM Delta;V[RentalContract*MaxRentalDuration]

(MAINTEINING -sessionRC \ / sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPick
(MAINTEINING -sessionRC \ / sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPick
(MAINTEINING -(sessionRC~;sessionRC) \ / I[RentalContract] FROM UNI sessionRC::SE

```

----- Derivation ----->

```
ALL of DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM (-(sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBranch~

      (TO MAINTAIN -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcP
      (TO MAINTAIN -(sessionRC~;sessionRC) \/ (I[RentalContract] /\ rcPickupBranch;
      (TO MAINTAIN -(sessionRC~;sessionRC) \/ I[RentalContract] FROM UNI sessionRC:
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM Delta;V[RentalContract*Date]

DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM Delta;V[RentalContract*Date]

DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM Delta;V[RentalContract*CarType]

DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM Delta;V[RentalContract*Branch]

DELETE FROM rcDropoffBranch[RentalContract*Branch]
      SELECTFROM Delta;V[RentalContract*Branch]

DELETE FROM rcRenter[RentalContract*Person]
      SELECTFROM Delta;V[RentalContract*Person]

DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM Delta;V[RentalContract*Person]

DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM Delta;V[RentalContract*YesNo]

DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM Delta;V[RentalContract*Car]

DELETE FROM rentalHasStarted[RentalContract*RentalContract]
      SELECTFROM Delta;V[RentalContract*RentalContract] \/ V[RentalContract*RentalC

DELETE FROM rcDroppedOffCar[RentalContract*Car]
      SELECTFROM Delta;V[RentalContract*Car]

DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM Delta;V[RentalContract*Date]

DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
      SELECTFROM Delta;V[RentalContract*Branch]

DELETE FROM rentalHasEnded[RentalContract*RentalContract]
      SELECTFROM Delta;V[RentalContract*RentalContract] \/ V[RentalContract*RentalC
```

```

DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
SELECTFROM Delta;V[RentalContract*YesNo]

DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM Delta;V[RentalContract*Integer]

DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM Delta;V[RentalContract*Integer]

DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM Delta;V[RentalContract*Amount]

DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM Delta;V[RentalContract*MaxRentalDuration]

(MAINTEINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBra
(MAINTEINING -sessionRC \/ sessionRC;(I[RentalContract] /\ rcPickupBranch;rcPickupBra
(MAINTEINING -(sessionRC~;sessionRC) \/ I[RentalContract] FROM UNI sessionRC::SESSION

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=Person} EXECUTE -- (ECA rule 116)
ALL of DELETE FROM rcDriver[RentalContract*Person]
SELECTFROM -(rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLic

(TO MAINTAIN -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;val
(TO MAINTAIN -(rcDriver~;rcDriver) \/ (I[Person] /\ validDrivingLicense;
(TO MAINTAIN -(rcDriver~;rcDriver) \/ I[Person] FROM UNI rcDriver::Renta
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcRenter) \/ V[RentalContra

(TO MAINTAIN -(rcRenter~;rcRenter) \/ I[Person] FROM UNI rcRenter::Renta
DELETE FROM validDrivingLicense[Person*DrivingLicense]
SELECTFROM Delta;V[Person*DrivingLicense]

ONE OF DELETE FROM rcDriver[RentalContract*Person]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcDr

```

```

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcDriver[RentalContract*Person]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcDr

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcDriver[RentalContract*Person]
SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcDriver[RentalContract*Person]
SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
(MAINTAINING -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ
ONE OF DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcRe

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcRe

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Y

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHan
(MAINTAINING -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ
(MAINTAINING -rcDriver /\ rcDriver;(I[Person] /\ validDrivingLicense;validDrivin
(MAINTAINING -rcDriver /\ rcDriver;(I[Person] /\ validDrivingLicense;validDrivin
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont

```



```

(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont
(MAINAINING -(rcRenter~;rcRenter) /\ I[Person] FROM UNI rcRenter::RentalContrac
(MAINAINING -(rcDriver~;rcDriver) /\ I[Person] FROM UNI rcDriver::RentalContrac

```

----- Derivation ----->

```

ALL of DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM -(rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLicense~

(TO MAINTAIN  -rcDriver /\ rcDriver;(I[Person] /\ validDrivingLicense;validDri
(TO MAINTAIN  -(rcDriver~;rcDriver) /\ (I[Person] /\ validDrivingLicense;valid
(TO MAINTAIN  -(rcDriver~;rcDriver) /\ I[Person] FROM UNI rcDriver::RentalCont
DELETE FROM rcRenter[RentalContract*Person]
      SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcRenter) /\ V[RentalContract*Pe

(TO MAINTAIN  -(rcRenter~;rcRenter) /\ I[Person] FROM UNI rcRenter::RentalCont
DELETE FROM validDrivingLicense[Person*DrivingLicense]
      SELECTFROM Delta;V[Person*DrivingLicense]

ONE OF DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcDriver;

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcDriver;

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcDriver[RentalContract*Person]
      SELECTFROM rcDriver;(-I[Person] /\ rcDriver~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN  -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
(MAINAINING -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcD
ONE OF DELETE FROM rcRenter[RentalContract*Person]
      SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcRenter;

(TO MAINTAIN  -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv

```

```

DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcRenter;

(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
DELETE FROM rcRenter[RentalContract*Person]
SELECTFROM rcRenter;(-I[Person] /\ rcRenter~;rcKeysHandedOverQ;'Yes'[Y

(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOv
(MAINTAINING -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcR
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLice
(MAINTAINING -rcDriver \/ rcDriver;(I[Person] /\ validDrivingLicense;validDrivingLice
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
(MAINTAINING -(rcRenter~;rcRenter) \/ I[Person] FROM UNI rcRenter::RentalContract*Per
(MAINTAINING -(rcDriver~;rcDriver) \/ I[Person] FROM UNI rcDriver::RentalContract*Per

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=DrivingLicense} EXECUTE      -- (ECA rule 118)
DELETE FROM validDrivingLicense[Person*DrivingLicense]
SELECTFROM V[Person*DrivingLicense];Delta

```

----- Derivation ----->

```

DELETE FROM validDrivingLicense[Person*DrivingLicense]
SELECTFROM V[Person*DrivingLicense];Delta

```

<-----End Derivation --

```

ON INSERT Delta IN Isn{dety=Car} EXECUTE      -- (ECA rule 119)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Car] /\ -(carAvailableAt;car

```

```

THEN INSERT INTO carAvailableAt[Car*Branch]
    SELECTFROM 'a'[Car]*'b'[Branch]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
PICK a,b FROM carAvailableAt~;(I[Car] /\ -(carAvailableAt;carAvail
THEN INSERT INTO carAvailableAt[Car*Branch]
    SELECTFROM 'b'[Car]*'a'[Branch]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(r
NEW x:Branch;
    INSERT INTO carAvailableAt[Car*Branch]
        SELECTFROM (I[Car] /\ -(carAvailableAt;carAvailableAt~) /\ -(rcIssuedC

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(r
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Car] /\ -(carAvailableAt;car
    THEN INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'b'[RentalContract]*'a'[Car]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
PICK a,b FROM rcIssuedCar;(I[Car] /\ -(carAvailableAt;carAvailable
THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalC
    THEN ALL of INSERT INTO rentalHasStarted[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[Car]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
DELETE FROM rentalHasEnded[RentalContract*Car]
    SELECTFROM 'a'[RentalContract]*'b'[Car]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
PICK a,b FROM (rentalHasStarted~ /\ -rentalHasEnded[RentalContract*Car]
THEN INSERT INTO rcIssuedCar[RentalContract*Car]
    SELECTFROM 'a'[RentalContract]*'b'[Car]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
NEW x:RentalContract;
    ALL of ALL of INSERT INTO rentalHasStarted[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[Car]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
DELETE FROM rentalHasEnded[RentalContract*Car]
    SELECTFROM 'a'[RentalContract]*'b'[Car]

    (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
INSERT INTO rcIssuedCar[RentalContract*Car]
    SELECTFROM 'x'[RentalContract]*'a'[RentalContract]

```

```

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvail
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIss
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(r
NEW x:RentalContract;
    ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*(I[Car] /\ -(carAvailableAt;carAvail

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIss
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[RentalContract*
    THEN ALL of INSERT INTO rentalHasStarted[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract*Car]

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~
        DELETE FROM rentalHasEnded[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[RentalContract*Car]

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~
        PICK a,b FROM (rentalHasStarted~ /\ -rentalHasEnded
    THEN INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[Car]

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/
NEW x:RentalContract;
    ALL of INSERT INTO rentalHasStarted[RentalContract*RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*(I[Car] /\ -(carAvailableAt;carAvail

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~
        DELETE FROM rentalHasEnded[RentalContract*RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*(I[Car] /\ -(carAvailableAt;carAvail

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~
        INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*'x'[RentalContract*Car]

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(r
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Car] /\ -(carType;carType~))
    THEN INSERT INTO carType[Car*CarType]
        SELECTFROM 'a'[Car]*'b'[CarType]

        (TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI

```

```

PICK a,b FROM carType~;(I[Car] /\ -(carType;carType~))
THEN INSERT INTO carType[Car*CarType]
      SELECTFROM 'b'[Car]*'a'[CarType]

      (TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI
(MAINAINING -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car
NEW x:CarType;
      INSERT INTO carType[Car*CarType]
      SELECTFROM (I[Car] /\ -(carType;carType~))*'x'[CarType]

      (TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::
      (MAINAINING -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car
(MAINAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHa
(MAINAINING -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
(MAINAINING -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Car] /\ -(carAvailableAt;carAvail
      THEN INSERT INTO carAvailableAt[Car*Branch]
      SELECTFROM 'a'[Car]*'b'[Branch]

      (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssue
PICK a,b FROM carAvailableAt~;(I[Car] /\ -(carAvailableAt;carAvailableAt~))
      THEN INSERT INTO carAvailableAt[Car*Branch]
      SELECTFROM 'b'[Car]*'a'[Branch]

      (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssue
(MAINAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rental
NEW x:Branch;
      INSERT INTO carAvailableAt[Car*Branch]
      SELECTFROM (I[Car] /\ -(carAvailableAt;carAvailableAt~) /\ -(rcIssuedCar~;(
      (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(ren
(MAINAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rental
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Car] /\ -(carAvailableAt;carAvail
      THEN INSERT INTO rcIssuedCar[RentalContract*Car]
      SELECTFROM 'b'[RentalContract]*'a'[Car]

      (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssue
PICK a,b FROM rcIssuedCar;(I[Car] /\ -(carAvailableAt;carAvailableAt~))
      THEN ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('a'[RentalContra
      THEN ALL of INSERT INTO rentalHasStarted[RentalContract*Car]
      SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

      (TO MAINTAIN -I[Car] \/ carAvailableAt;
DELETE FROM rentalHasEnded[RentalContract*Car]
      SELECTFROM 'a'[RentalContract]*'b'[RentalContract]

```

```

        (TO MAINTAIN -I[Car] \/ carAvailableAt;
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvail
        PICK a,b FROM (rentalHasStarted~ /\ -rentalHasEnded~
        THEN INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[Car]

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvail
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ r
        NEW x:RentalContract;
        ALL of ALL of INSERT INTO rentalHasStarted[RentalContract
        SELECTFROM 'a'[RentalContract]*'b'[Car]*'x

        (TO MAINTAIN -I[Car] \/ carAvailableAt;car
        DELETE FROM rentalHasEnded[RentalContract*R
        SELECTFROM 'a'[RentalContract]*'b'[Car]*'x

        (TO MAINTAIN -I[Car] \/ carAvailableAt;car
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailabl
        INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*'a'[RentalContract

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailabl
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ r
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssued
        NEW x:RentalContract;
        ALL of INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'x'[RentalContract]*(I[Car] /\ -(carAvailableAt;carAvaila

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCa
        ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM ('x'[RentalContract]
        THEN ALL of INSERT INTO rentalHasStarted[RentalContract
        SELECTFROM 'a'[RentalContract]*'b'[RentalC

        (TO MAINTAIN -I[Car] \/ carAvailableAt;car
        DELETE FROM rentalHasEnded[RentalContract*R
        SELECTFROM 'a'[RentalContract]*'b'[RentalC

        (TO MAINTAIN -I[Car] \/ carAvailableAt;car
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailabl
        PICK a,b FROM (rentalHasStarted~ /\ -rentalHasEnded~);(
        THEN INSERT INTO rcIssuedCar[RentalContract*Car]
        SELECTFROM 'a'[RentalContract]*'b'[Car]

        (TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailabl
        (MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIs
        NEW x:RentalContract;
        ALL of INSERT INTO rentalHasStarted[RentalContract*RentalCon

```

```

SELECTFROM 'x'[RentalContract]*(I[Car] /\ -(carAvail

(TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableA
DELETE FROM rentalHasEnded[RentalContract*RentalContr
SELECTFROM 'x'[RentalContract]*(I[Car] /\ -(carAvail

(TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableA
INSERT INTO rcIssuedCar[RentalContract*Car]
SELECTFROM 'x'[RentalContract]*'x'[RentalContract]*(

(TO MAINTAIN -I[Car] \/ carAvailableAt;carAvailableA
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rc
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIs
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rent
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rental
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[Car] /\ -(carType;carType~));carT
THEN INSERT INTO carType[Car*CarType]
SELECTFROM 'a'[Car]*'b'[CarType]

(TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI carT
PICK a,b FROM carType~;(I[Car] /\ -(carType;carType~))
THEN INSERT INTO carType[Car*CarType]
SELECTFROM 'b'[Car]*'a'[CarType]

(TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI carT
(MAINTAINING -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car*CarT
NEW x:CarType;
INSERT INTO carType[Car*CarType]
SELECTFROM (I[Car] /\ -(carType;carType~))*'x'[CarType]

(TO MAINTAIN -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car*C
(MAINTAINING -I[Car] \/ carType;I[CarType];carType~ FROM UNI carType::Car*CarT
(MAINTAINING -I[Car] \/ carAvailableAt;carAvailableAt~ \/ rcIssuedCar~;(rentalHasStar
(MAINTAINING -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
(MAINTAINING -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=Car} EXECUTE -- (ECA rule 120)
ALL of DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rcIssuedCar;(-I[Car] /\ rcIssuedCar~;rcIssuedCar) \/ V[Rental

(TO MAINTAIN -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar:
DELETE FROM rcDroppedOffCar[RentalContract*Car]
SELECTFROM rcDroppedOffCar;(-I[Car] /\ rcDroppedOffCar~;rcDroppedOffCar)

(TO MAINTAIN -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDr

```

```

DELETE FROM carAvailableAt[Car*Branch]
SELECTFROM Delta;V[Car*Branch]

DELETE FROM carType[Car*CarType]
SELECTFROM Delta;V[Car*CarType]

ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM rcDroppedOffCar;(-I[Car] /\ rcDroppedOffCar~;rcIssuedC

      (TO MAINTAIN -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropp
      DELETE FROM rcDroppedOffCar[RentalContract*Car]
      SELECTFROM rcIssuedCar;(-I[Car] /\ rcIssuedCar~;rcDroppedOffCar)

      (TO MAINTAIN -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropp
      (MAINTAINING -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off c
      (MAINTAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity
      (MAINTAINING -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar::RentalC
      (MAINTAINING -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDroppedOff

```

----- Derivation ----->

```

ALL of DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM rcIssuedCar;(-I[Car] /\ rcIssuedCar~;rcIssuedCar) \/ V[RentalContr

      (TO MAINTAIN -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar::Rent
      DELETE FROM rcDroppedOffCar[RentalContract*Car]
      SELECTFROM rcDroppedOffCar;(-I[Car] /\ rcDroppedOffCar~;rcDroppedOffCar) \/ V

      (TO MAINTAIN -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDropped
      DELETE FROM carAvailableAt[Car*Branch]
      SELECTFROM Delta;V[Car*Branch]

      DELETE FROM carType[Car*CarType]
      SELECTFROM Delta;V[Car*CarType]

      ONE OF DELETE FROM rcIssuedCar[RentalContract*Car]
            SELECTFROM rcDroppedOffCar;(-I[Car] /\ rcDroppedOffCar~;rcIssuedCar)

            (TO MAINTAIN -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off
            DELETE FROM rcDroppedOffCar[RentalContract*Car]
            SELECTFROM rcIssuedCar;(-I[Car] /\ rcIssuedCar~;rcDroppedOffCar)

            (TO MAINTAIN -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off
            (MAINTAINING -(rcIssuedCar~;rcDroppedOffCar) \/ I[Car] FROM Dropped-off car ty
      (MAINTAINING -rcDroppedOffCar \/ rcIssuedCar FROM Dropped-off car type integrity)
      (MAINTAINING -(rcIssuedCar~;rcIssuedCar) \/ I[Car] FROM UNI rcIssuedCar::RentalContra
      (MAINTAINING -(rcDroppedOffCar~;rcDroppedOffCar) \/ I[Car] FROM UNI rcDroppedOffCar::

```

<-----End Derivation --


```

ON INSERT Delta IN Isn{dety=CarType} EXECUTE      -- (ECA rule 121)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(brand;brand~))
      THEN INSERT INTO brand[CarType*Brand]
            SELECTFROM 'a'[CarType]*'b'[Brand]

      (TO MAINTAIN -I[CarType] \/ brand;I[Brand];brand~ FROM UNI b
PICK a,b FROM brand~;(I[CarType] /\ -(brand;brand~))
      THEN INSERT INTO brand[CarType*Brand]
            SELECTFROM 'b'[CarType]*'a'[Brand]

      (TO MAINTAIN -I[CarType] \/ brand;I[Brand];brand~ FROM UNI b
(MAINTAINING -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType
NEW x:Brand;
      INSERT INTO brand[CarType*Brand]
            SELECTFROM (I[CarType] /\ -(brand;brand~))*'x'[Brand]

      (TO MAINTAIN -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType
(MAINTAINING -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(model;model~))
      THEN INSERT INTO model[CarType*Model]
            SELECTFROM 'a'[CarType]*'b'[Model]

      (TO MAINTAIN -I[CarType] \/ model;I[Model];model~ FROM UNI m
PICK a,b FROM model~;(I[CarType] /\ -(model;model~))
      THEN INSERT INTO model[CarType*Model]
            SELECTFROM 'b'[CarType]*'a'[Model]

      (TO MAINTAIN -I[CarType] \/ model;I[Model];model~ FROM UNI m
(MAINTAINING -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType
NEW x:Model;
      INSERT INTO model[CarType*Model]
            SELECTFROM (I[CarType] /\ -(model;model~))*'x'[Model]

      (TO MAINTAIN -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType
(MAINTAINING -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(rentalTariffPerDay;
      THEN INSERT INTO rentalTariffPerDay[CarType*Amount]
            SELECTFROM 'a'[CarType]*'b'[Amount]

      (TO MAINTAIN -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay
PICK a,b FROM rentalTariffPerDay~;(I[CarType] /\ -(rentalTariffPerDay;
      THEN INSERT INTO rentalTariffPerDay[CarType*Amount]
            SELECTFROM 'b'[CarType]*'a'[Amount]

      (TO MAINTAIN -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay
(MAINTAINING -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay
NEW x:Amount;
      INSERT INTO rentalTariffPerDay[CarType*Amount]
            SELECTFROM (I[CarType] /\ -(rentalTariffPerDay;rentalTariffPerDay~))*'x'

```

```

      (TO MAINTAIN  -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay
      (MAINTAINING -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay
      ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(excessTariffPerDay
      THEN INSERT INTO excessTariffPerDay[CarType*Amount]
      SELECTFROM 'a'[CarType]*'b'[Amount]

      (TO MAINTAIN  -I[CarType] \/ excessTariffPerDay;I[Amount];excessTariffPerDay
      PICK a,b FROM excessTariffPerDay~;(I[CarType] /\ -(excessTariffPerDay
      THEN INSERT INTO excessTariffPerDay[CarType*Amount]
      SELECTFROM 'b'[CarType]*'a'[Amount]

      (TO MAINTAIN  -I[CarType] \/ excessTariffPerDay;I[Amount];excessTariffPerDay
      (MAINTAINING -I[CarType] \/ excessTariffPerDay;I[Amount];excessTariffPerDay
      (MAINTAINING -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
      (MAINTAINING -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)
      (MAINTAINING -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      (MAINTAINING -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)
      (MAINTAINING -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI rentalTariffPerDay
      (MAINTAINING -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rentalTariffPerDay
      (MAINTAINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI excessTariffPerDay
      (MAINTAINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT excessTariffPerDay

```

----- Derivation ----->

```

      ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(brand;brand~));brand
      THEN INSERT INTO brand[CarType*Brand]
      SELECTFROM 'a'[CarType]*'b'[Brand]

      (TO MAINTAIN  -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType*Brand
      PICK a,b FROM brand~;(I[CarType] /\ -(brand;brand~))
      THEN INSERT INTO brand[CarType*Brand]
      SELECTFROM 'b'[CarType]*'a'[Brand]

      (TO MAINTAIN  -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType*Brand
      (MAINTAINING -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType*Brand
      NEW x:Brand;
      INSERT INTO brand[CarType*Brand]
      SELECTFROM (I[CarType] /\ -(brand;brand~))*'x'[Brand]

      (TO MAINTAIN  -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType*Brand
      (MAINTAINING -I[CarType] \/ brand;I[Brand];brand~ FROM UNI brand::CarType*Brand
      ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(model;model~));model
      THEN INSERT INTO model[CarType*Model]
      SELECTFROM 'a'[CarType]*'b'[Model]

      (TO MAINTAIN  -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType*Model
      PICK a,b FROM model~;(I[CarType] /\ -(model;model~))

```

```

        THEN INSERT INTO model[CarType*Model]
            SELECTFROM 'b'[CarType]*'a'[Model]

        (TO MAINTAIN -I[CarType] \/ model;I[Model];model~ FROM UNI model:
(MAINAINING -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType*Mode
NEW x:Model;
        INSERT INTO model[CarType*Model]
            SELECTFROM (I[CarType] /\ -(model;model~))*'x'[Model]

        (TO MAINTAIN -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType*M
(MAINAINING -I[CarType] \/ model;I[Model];model~ FROM UNI model::CarType*Mode
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(rentalTariffPerDay;
        THEN INSERT INTO rentalTariffPerDay[CarType*Amount]
            SELECTFROM 'a'[CarType]*'b'[Amount]

        (TO MAINTAIN -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTa
PICK a,b FROM rentalTariffPerDay~;(I[CarType] /\ -(rentalTariffPerDay;r
        THEN INSERT INTO rentalTariffPerDay[CarType*Amount]
            SELECTFROM 'b'[CarType]*'a'[Amount]

        (TO MAINTAIN -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTa
(MAINAINING -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay~ F
NEW x:Amount;
        INSERT INTO rentalTariffPerDay[CarType*Amount]
            SELECTFROM (I[CarType] /\ -(rentalTariffPerDay;rentalTariffPerDay~))*'x'[Am

        (TO MAINTAIN -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay
(MAINAINING -I[CarType] \/ rentalTariffPerDay;I[Amount];rentalTariffPerDay~ F
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CarType] /\ -(excessTariffPerDay;
        THEN INSERT INTO excessTariffPerDay[CarType*Amount]
            SELECTFROM 'a'[CarType]*'b'[Amount]

        (TO MAINTAIN -I[CarType] \/ excessTariffPerDay;I[Amount];excessTa
PICK a,b FROM excessTariffPerDay~;(I[CarType] /\ -(excessTariffPerDay;e
        THEN INSERT INTO excessTariffPerDay[CarType*Amount]
            SELECTFROM 'b'[CarType]*'a'[Amount]

        (TO MAINTAIN -I[CarType] \/ excessTariffPerDay;I[Amount];excessTa
(MAINAINING -I[CarType] \/ excessTariffPerDay;I[Amount];excessTariffPerDay~ F
(MAINAINING -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(MAINAINING -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)
(MAINAINING -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
(MAINAINING -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)
(MAINAINING -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI rentalTa
(MAINAINING -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rentalTar
(MAINAINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI excessTa
(MAINAINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT excessTar

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=CarType} EXECUTE      -- (ECA rule 122)
ONE OF DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM rcIssuedCar;carType;(-I[CarType] /\ carType~;rcIssuedCar~;rcC

      (TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) /\ I[CarType] FROM Rented
DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM rcCarType;(-I[CarType] /\ rcCarType~;rcIssuedCar;carType);car

      (TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) /\ I[CarType] FROM Rented
DELETE FROM carType[Car*CarType]
      SELECTFROM rcIssuedCar~;rcCarType;(-I[CarType] /\ rcCarType~;rcIssuedCar

      (TO MAINTAIN  -(rcCarType~;rcIssuedCar;carType) /\ I[CarType] FROM Rented
DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM rcCarType;(-I[CarType] /\ rcCarType~;rcCarType)

      (TO MAINTAIN  -(rcCarType~;rcCarType) /\ I[CarType] FROM UNI rcCarType::R
DELETE FROM carType[Car*CarType]
      SELECTFROM carType;(-I[CarType] /\ carType~;carType)

      (TO MAINTAIN  -(carType~;carType) /\ I[CarType] FROM UNI carType::Car*Car
DELETE FROM brand[CarType*Brand]
      SELECTFROM Delta;V[CarType*Brand]

DELETE FROM model[CarType*Model]
      SELECTFROM Delta;V[CarType*Model]

DELETE FROM rentalTariffPerDay[CarType*Amount]
      SELECTFROM Delta;V[CarType*Amount]

DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM V[RentalContract*CarType];Delta

DELETE FROM carType[Car*CarType]
      SELECTFROM V[Car*CarType];Delta

DELETE FROM excessTariffPerDay[CarType*Amount]
      SELECTFROM Delta;V[CarType*Amount]

(MAINTAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -rcIssuedCar /\ rcCarType;carType~ FROM Rented car type integrity)
(MAINTAINING -(rcCarType~;rcCarType) /\ I[CarType] FROM UNI rcCarType::RentalCon
(MAINTAINING -(carType~;carType) /\ I[CarType] FROM UNI carType::Car*CarType)
(MAINTAINING -I[Car] /\ carType;carType~ FROM TOT carType::Car*CarType)

```

----- Derivation ----->

```

ONE OF DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM rcIssuedCar;carType;(-I[CarType] /\ carType~;rcIssuedCar~;rcCarType~

      (TO MAINTAIN -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented car
      DELETE FROM rcIssuedCar[RentalContract*Car]
      SELECTFROM rcCarType;(-I[CarType] /\ rcCarType~;rcIssuedCar;carType);carType~

      (TO MAINTAIN -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented car
      DELETE FROM carType[Car*CarType]
      SELECTFROM rcIssuedCar~;rcCarType;(-I[CarType] /\ rcCarType~;rcIssuedCar;carType)

      (TO MAINTAIN -(rcCarType~;rcIssuedCar;carType) \/ I[CarType] FROM Rented car
      DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM rcCarType;(-I[CarType] /\ rcCarType~;rcCarType)

      (TO MAINTAIN -(rcCarType~;rcCarType) \/ I[CarType] FROM UNI rcCarType::RentalContract
      DELETE FROM carType[Car*CarType]
      SELECTFROM carType;(-I[CarType] /\ carType~;carType)

      (TO MAINTAIN -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
      DELETE FROM brand[CarType*Brand]
      SELECTFROM Delta;V[CarType*Brand]

      DELETE FROM model[CarType*Model]
      SELECTFROM Delta;V[CarType*Model]

      DELETE FROM rentalTariffPerDay[CarType*Amount]
      SELECTFROM Delta;V[CarType*Amount]

      DELETE FROM rcCarType[RentalContract*CarType]
      SELECTFROM V[RentalContract*CarType];Delta

      DELETE FROM carType[Car*CarType]
      SELECTFROM V[Car*CarType];Delta

      DELETE FROM excessTariffPerDay[CarType*Amount]
      SELECTFROM Delta;V[CarType*Amount]

      (MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
      (MAINTAINING -rcIssuedCar \/ rcCarType;carType~ FROM Rented car type integrity)
      (MAINTAINING -(rcCarType~;rcCarType) \/ I[CarType] FROM UNI rcCarType::RentalContract
      (MAINTAINING -(carType~;carType) \/ I[CarType] FROM UNI carType::Car*CarType)
      (MAINTAINING -I[Car] \/ carType;carType~ FROM TOT carType::Car*CarType)

```

<-----End Derivation --

```

ON INSERT Delta IN Isn{dety=YesNo} EXECUTE      -- (ECA rule 123)
ALL of INSERT INTO Isn{dety=Person}

```

```

SELECTFROM (rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;

(TO MAINTAIN -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;
(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssued

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIs
INSERT INTO rentalHasEnded[RentalContract*RentalContract]
SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBrn

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOff
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;renta

(TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rc
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'
THEN INSERT INTO rcDriver[RentalContract*Person]
SELECTFROM 'a'[RentalContract]*'b'[Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysH
PICK a,b FROM rcDriver~;(rcKeysHandedOverQ;'Yes'[YesNo];rcK
THEN INSERT INTO rcDriver[RentalContract*Person]
SELECTFROM 'b'[RentalContract]*'a'[Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysH
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /
NEW x:Person;
INSERT INTO rcDriver[RentalContract*Person]
SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[Ren
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'
THEN INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM 'a'[RentalContract]*'b'[Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysH
PICK a,b FROM rcRenter~;(rcKeysHandedOverQ;'Yes'[YesNo];rcK
THEN INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM 'b'[RentalContract]*'a'[Person]

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysH
(MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /
NEW x:Person;
INSERT INTO rcRenter[RentalContract*Person]
SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~

```

```

(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[Rent
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalIsPaidQ;'Yes'[Yes
THEN INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM 'a'[RentalContract]*'b'[Amount]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
PICK a,b FROM rentalCharge~;(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
THEN INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM 'b'[RentalContract]*'a'[Amount]

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
NEW x:Amount;
INSERT INTO rentalCharge[RentalContract*Amount]
SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rent
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContr
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalCont
(MAINAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;r
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \
(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \

```

----- Derivation ----->

```

ALL of INSERT INTO Isn{dety=Person}
SELECTFROM (rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rcDri

(TO MAINTAIN -(rcDriver~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rc
(TO MAINTAIN -(rcRenter~;rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~;rc
INSERT INTO rentalHasStarted[RentalContract*RentalContract]
SELECTFROM rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;r

(TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedC
INSERT INTO rentalHasEnded[RentalContract*RentalContract]
SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rc

(TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranc
INSERT INTO Isn{dety=Amount}
SELECTFROM rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rentalChar

(TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental

```

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'[YesNo]
    THEN INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM 'a'[RentalContract]*'b'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
    PICK a,b FROM rcDriver~;(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
    THEN INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM 'b'[RentalContract]*'a'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
NEW x:Person;
    INSERT INTO rcDriver[RentalContract*Person]
        SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rcKeysHandedOverQ;'Yes'[YesNo]
    THEN INSERT INTO rcRenter[RentalContract*Person]
        SELECTFROM 'a'[RentalContract]*'b'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
    PICK a,b FROM rcRenter~;(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
    THEN INSERT INTO rcRenter[RentalContract*Person]
        SELECTFROM 'b'[RentalContract]*'a'[Person]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
NEW x:Person;
    INSERT INTO rcRenter[RentalContract*Person]
        SELECTFROM (rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]

    (TO MAINTAIN -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
    (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~
    THEN INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM 'a'[RentalContract]*'b'[Amount]

    (TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
    PICK a,b FROM rentalCharge~;(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
    THEN INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM 'b'[RentalContract]*'a'[Amount]

    (TO MAINTAIN -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\
    (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]
NEW x:Amount;
    INSERT INTO rentalCharge[RentalContract*Amount]
        SELECTFROM (rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]

```



```

        (TO MAINTAIN  -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[Rental
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalCon
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract])
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ I[RentalContract]
        (MAINTAINING -(rcKeysHandedOverQ;'Yes'[YesNo];rcKeysHandedOverQ~ /\ rcIssuedCar;rcIss
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ rcDroppedOffBranch;rcDrop
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \ / ren
        (MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \ / ren

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=YesNo} EXECUTE      -- (ECA rule 124)
ALL of DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM V[RentalContract*YesNo];Delta

DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
      SELECTFROM V[RentalContract*YesNo];Delta

```

----- Derivation ----->

```

ALL of DELETE FROM rcKeysHandedOverQ[RentalContract*YesNo]
      SELECTFROM V[RentalContract*YesNo];Delta

DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
      SELECTFROM V[RentalContract*YesNo];Delta

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=Amount} EXECUTE      -- (ECA rule 126)
ONE OF DELETE FROM rentalCharge[RentalContract*Amount]
      SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rentalCharge;(-I[Am

        (TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rc
        DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
        SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'

        (TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rc
        DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
        SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'

```

```

(TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;r
DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rentalCharge;(-I[Am

(TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;r
DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'

(TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;r
DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'

(TO MAINTAIN  -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;r
DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM (rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rent

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;(rentalBasicCharge;

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;(arg1;renta

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;(rentalBasicCharge;

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM arg2[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;(arg1;renta

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;(rentalBasicCharge;

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;(arg1;renta

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\ arg3

(TO MAINTAIN  -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCh
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTarif

(TO MAINTAIN  -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued

```

```

DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;(rentalPe

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOf

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;(rentalPe

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM carType[Car*CarType]
SELECTFROM rcIssuedCar~;rentalBasicCharge;(-I[Amount] /\ rentalBasicChar

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM carType~;rcIssuedCar~;rentalBasicCharge;(-I[Amount] /\ rental

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOf

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariffPerD

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssued
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;exces

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;(rent

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOf

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;(rent

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM carType[Car*CarType]
SELECTFROM rcIssuedCar~;rentalPenaltyCharge;(-I[Amount] /\ rentalPenalty

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM carType~;rcIssuedCar~;rentalPenaltyCharge;(-I[Amount] /\ rent

```

```

(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOfDays~;rentalExcessPeriod;ctcNrOfDays~ /\

(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM (ctcNrOfDays~;rentalExcessPeriod~ /\ ctcDailyAmount;excessTariffedCharge~;ctcNrOfDays~;rentalExcessPeriod;ctcNrOfDays~ /\

(TO MAINTAIN  -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\
DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
SELECTFROM rentalLocationPenaltyCharge;(-I[Amount] /\ rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;(-I[Amount] /\ distpenalty~;(distbranch;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM rentalLocationPenaltyCharge;(-I[Amount] /\ rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;(-I[Amount] /\ distpenalty~;(distbranch;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\
DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM (distbranch;rcDroppedOffBranch~ /\ distbranch;rcDropoffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\
DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;compRentalCharge~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(compRentalCharge~;I[CompRentalCharge];compRentalCharge) /\
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;compTariffedCharge~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(compTariffedCharge~;I[CompTariffedCharge];compTariffedCharge) /\
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM rentalTariffPerDay;(-I[Amount] /\ rentalTariffPerDay~;rentalTariffPerDay~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~;rentalLocationPenaltyCharge~;rcDroppedOffBranch;distbranch~ /\

(TO MAINTAIN  -(rentalTariffPerDay~;rentalTariffPerDay) /\ I[Amount] FROM rentalCharge[CarType*Amount]
DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalCharge)

(TO MAINTAIN  -(rentalCharge~;rentalCharge) /\ I[Amount] FROM UNI rentalCharge[RentalContract*Amount]

```

```

DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;rentalBas

(TO MAINTAIN -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI
DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM excessTariffPerDay;(-I[Amount] /\ excessTariffPerDay~;excessT

(TO MAINTAIN -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;rental

(TO MAINTAIN -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FROM UNI
DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM distpenalty;(-I[Amount] /\ distpenalty~;distpenalty)

(TO MAINTAIN -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenal
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalLocationPenaltyCharge;(-I[Amount] /\ rentalLocationPena

(TO MAINTAIN -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge)
DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM arg1;(-I[Amount] /\ arg1~;arg1)

(TO MAINTAIN -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*
DELETE FROM arg2[CompRentalCharge*Amount]
SELECTFROM arg2;(-I[Amount] /\ arg2~;arg2)

(TO MAINTAIN -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*
DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM arg3;(-I[Amount] /\ arg3~;arg3)

(TO MAINTAIN -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM ctcDailyAmount;(-I[Amount] /\ ctcDailyAmount~;ctcDailyAmount)

(TO MAINTAIN -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctc
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM V[CarType*Amount];Delta

DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM V[CarType*Amount];Delta

DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

```

```

DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM V[DistanceBetweenLocations*Amount];Delta

DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM arg2[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM V[CompTariffedCharge*Amount];Delta

DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM V[CompTariffedCharge*Amount];Delta

(MAINAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract])) \
(MAINAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLo
(MAINAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPer
(MAINAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTar
(MAINAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);d
(MAINAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Comp
(MAINAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FR
(MAINAINING -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI ren
(MAINAINING -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rent
(MAINAINING -(rentalCharge~;rentalCharge) \/ I[Amount] FROM UNI rentalCharge::R
(MAINAINING -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI renta
(MAINAINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI exc
(MAINAINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT exce
(MAINAINING -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FROM UNI r
(MAINAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::Dist
(MAINAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT d
(MAINAINING -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge) \/ I[Am
(MAINAINING -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*
(MAINAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*
(MAINAINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*
(MAINAINING -(compRentalCharge~;compRentalCharge) \/ I[Amount] FROM UNI compRen
(MAINAINING -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmo

```

```
(MAINTAINING -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT c
(MAINTAINING -(compTariffedCharge~;compTariffedCharge) \/ I[Amount] FROM UNI comp
```

----- Derivation ----->

```
ONE OF DELETE FROM rentalCharge[RentalContract*Amount]
      SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rentalCharge;(-I[Amount]

      (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
      SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'[YesN

      (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
DELETE FROM rentalIsPaidQ[RentalContract*YesNo]
      SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'[YesN

      (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
DELETE FROM rentalCharge[RentalContract*Amount]
      SELECTFROM rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rentalCharge;(-I[Amount]

      (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
DELETE FROM rentalCharge[RentalContract*Amount]
      SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'[YesN

      (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
DELETE FROM rentalCharge[RentalContract*Amount]
      SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalIsPaidQ;'Yes'[YesN

      (TO MAINTAIN -(rentalCharge~;rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~;rental
DELETE FROM rentalCharge[RentalContract*Amount]
      SELECTFROM (rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLoc

      (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM rentalBasicCharge[RentalContract*Amount]
      SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;(rentalBasicCharge;arg1~

      (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM arg1[CompRentalCharge*Amount]
      SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;(arg1;rentalBasi

      (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
      SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;(rentalBasicCharge;arg1~

      (TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM arg2[CompRentalCharge*Amount]
      SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;(arg1;rentalBasi
```

```

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;(rentalBasicCharge;arg1~

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;(arg1;rentalBasi

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM (arg1;rentalBasicCharge~ /\ arg2;rentalPenaltyCharge~ /\ arg3;rent

(TO MAINTAIN -(rentalCharge~;(rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM (rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerD

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;(rentalPeriod;

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOfDays

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;(rentalPeriod;

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM carType[Car*CarType]
SELECTFROM rcIssuedCar~;rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;(

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM carType~;rcIssuedCar~;rentalBasicCharge;(-I[Amount] /\ rentalBasic

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOfDays

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM (ctcNrOfDays;rentalPeriod~ /\ ctcDailyAmount;rentalTariffPerDay~;

(TO MAINTAIN -(rentalBasicCharge~;(rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;c
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM (rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTari

(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIss
DELETE FROM rentalExcessPeriod[RentalContract*Integer]

```



```

SELECTFROM rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excessTariffPerDay[CarType*Amount]
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
DELETE FROM rcIssuedCar[RentalContract*Car]
SELECTFROM rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ ctcDailyAmount;excessTariffPerDay[CarType*Amount]
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM carType~;rcIssuedCar~;rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ ctcDailyAmount;excessTariffPerDay[CarType*Amount]
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;(ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excessTariffPerDay[CarType*Amount]
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM (ctcNrOfDays;rentalExcessPeriod~ /\ ctcDailyAmount;excessTariffPerDay[CarType*Amount]
(TO MAINTAIN -(rentalPenaltyCharge~;(rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar[RentalContract*Car]
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM (rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distbranch[DistanceBetweenLocations*Branch]
(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
DELETE FROM rcDroppedOffBranch[RentalContract*Branch]
SELECTFROM rentalLocationPenaltyCharge;(-I[Amount] /\ rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;(-I[Amount] /\ distpenalty~;(distbranch;rcDroppedOffBranch[DistanceBetweenLocations*Branch]
(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
DELETE FROM rcDropoffBranch[RentalContract*Branch]
SELECTFROM rentalLocationPenaltyCharge;(-I[Amount] /\ rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
DELETE FROM distbranch[DistanceBetweenLocations*Branch]
SELECTFROM distpenalty;(-I[Amount] /\ distpenalty~;(distbranch;rcDroppedOffBranch[DistanceBetweenLocations*Branch]
(TO MAINTAIN -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch[DistanceBetweenLocations*Branch]
DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM (distbranch;rcDroppedOffBranch~ /\ distbranch;rcDropoffBranch~);re

```

```

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;(rcDroppedOffBranch;distbranch~ /
DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM compRentalCharge;(-I[Amount] /\ compRentalCharge~;compRentalCharge~

(TO MAINTAIN  -(compRentalCharge~;I[CompRentalCharge];compRentalCharge) \/ I[A
DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM compTariffedCharge;(-I[Amount] /\ compTariffedCharge~;compTariffed

(TO MAINTAIN  -(compTariffedCharge~;I[CompTariffedCharge];compTariffedCharge)
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM rentalTariffPerDay;(-I[Amount] /\ rentalTariffPerDay~;rentalTariff

(TO MAINTAIN  -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI
DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM rentalCharge;(-I[Amount] /\ rentalCharge~;rentalCharge)

(TO MAINTAIN  -(rentalCharge~;rentalCharge) \/ I[Amount] FROM UNI rentalCharge
DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM rentalBasicCharge;(-I[Amount] /\ rentalBasicCharge~;rentalBasicCha

(TO MAINTAIN  -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI re
DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM excessTariffPerDay;(-I[Amount] /\ excessTariffPerDay~;excessTariff

(TO MAINTAIN  -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI
DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalPenaltyCharge;(-I[Amount] /\ rentalPenaltyCharge~;rentalPena

(TO MAINTAIN  -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FROM UN
DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM distpenalty;(-I[Amount] /\ distpenalty~;distpenalty)

(TO MAINTAIN  -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::D
DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM rentalLocationPenaltyCharge;(-I[Amount] /\ rentalLocationPenaltyCh

(TO MAINTAIN  -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge) \/ I
DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM arg1;(-I[Amount] /\ arg1~;arg1)

(TO MAINTAIN  -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amoun
DELETE FROM arg2[CompRentalCharge*Amount]
SELECTFROM arg2;(-I[Amount] /\ arg2~;arg2)

(TO MAINTAIN  -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amoun
DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM arg3;(-I[Amount] /\ arg3~;arg3)

(TO MAINTAIN  -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amoun
DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]

```

```

SELECTFROM ctcDailyAmount;(-I[Amount] /\ ctcDailyAmount~;ctcDailyAmount)

(TO MAINTAIN -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDaily
DELETE FROM rentalTariffPerDay[CarType*Amount]
SELECTFROM V[CarType*Amount];Delta

DELETE FROM rentalCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM rentalBasicCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM excessTariffPerDay[CarType*Amount]
SELECTFROM V[CarType*Amount];Delta

DELETE FROM rentalPenaltyCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM V[DistanceBetweenLocations*Amount];Delta

DELETE FROM rentalLocationPenaltyCharge[RentalContract*Amount]
SELECTFROM V[RentalContract*Amount];Delta

DELETE FROM arg1[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM arg2[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM V[CompRentalCharge*Amount];Delta

DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
SELECTFROM V[CompTariffedCharge*Amount];Delta

DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
SELECTFROM V[CompTariffedCharge*Amount];Delta

(MAINTAINING -(rentalIsPaidQ;'Yes'[YesNo];rentalIsPaidQ~ /\ I[RentalContract]) \/ ren
(MAINTAINING -((rentalBasicCharge;arg1~ /\ rentalPenaltyCharge;arg2~ /\ rentalLocatio
(MAINTAINING -((rentalPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;rentalTariffPerDay;c
(MAINTAINING -((rentalExcessPeriod;ctcNrOfDays~ /\ rcIssuedCar;carType;excessTariffPe
(MAINTAINING -((rcDroppedOffBranch;distbranch~ /\ rcDropoffBranch;distbranch~);distpe
(MAINTAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Compute
(MAINTAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FROM Co
(MAINTAINING -(rentalTariffPerDay~;rentalTariffPerDay) \/ I[Amount] FROM UNI rentalTa

```

```

(MAINTEINING -I[CarType] \/ rentalTariffPerDay;rentalTariffPerDay~ FROM TOT rentalTar
(MAINTEINING -(rentalCharge~;rentalCharge) \/ I[Amount] FROM UNI rentalCharge::Rental
(MAINTEINING -(rentalBasicCharge~;rentalBasicCharge) \/ I[Amount] FROM UNI rentalBasi
(MAINTEINING -(excessTariffPerDay~;excessTariffPerDay) \/ I[Amount] FROM UNI excessTa
(MAINTEINING -I[CarType] \/ excessTariffPerDay;excessTariffPerDay~ FROM TOT excessTar
(MAINTEINING -(rentalPenaltyCharge~;rentalPenaltyCharge) \/ I[Amount] FROM UNI rental
(MAINTEINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::DistanceB
(MAINTEINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT distpe
(MAINTEINING -(rentalLocationPenaltyCharge~;rentalLocationPenaltyCharge) \/ I[Amount]
(MAINTEINING -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTEINING -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*Amount
(MAINTEINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
(MAINTEINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*Amount
(MAINTEINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINTEINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*Amount
(MAINTEINING -(compRentalCharge~;compRentalCharge) \/ I[Amount] FROM UNI compRentalCh
(MAINTEINING -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmount::
(MAINTEINING -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDai
(MAINTEINING -(compTariffedCharge~;compTariffedCharge) \/ I[Amount] FROM UNI compTari

```

<-----End Derivation --

```

ON INSERT Delta IN Isn{dety=CompRentalCharge} EXECUTE      -- (ECA rule 127)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(compR
      THEN INSERT INTO compRentalCharge[CompRentalCharge*Amount]
      SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

      (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRe
PICK a,b FROM compRentalCharge~;(I[CompRentalCharge] /\ -(compRent
      THEN INSERT INTO compRentalCharge[CompRentalCharge*Amount]
      SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

      (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRe
(MAINTEINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ F
NEW x:Amount;
      INSERT INTO compRentalCharge[CompRentalCharge*Amount]
      SELECTFROM (I[CompRentalCharge] /\ -(compRentalCharge;compRentalCharge

      (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge
(MAINTEINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ F
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(arg1;
      THEN INSERT INTO arg1[CompRentalCharge*Amount]
      SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

      (TO MAINTAIN -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FR
PICK a,b FROM arg1~;(I[CompRentalCharge] /\ -(arg1;arg1~))
      THEN INSERT INTO arg1[CompRentalCharge*Amount]
      SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

```

```

        (TO MAINTAIN -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM
(MAINAINING -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM UNI arg1:::
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(arg2;
    THEN INSERT INTO arg2[CompRentalCharge*Amount]
        SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

        (TO MAINTAIN -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM
PICK a,b FROM arg2~;(I[CompRentalCharge] /\ -(arg2;arg2~))
    THEN INSERT INTO arg2[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

        (TO MAINTAIN -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM
(MAINAINING -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM UNI arg2:::
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(arg3;
    THEN INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

        (TO MAINTAIN -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM
PICK a,b FROM arg3~;(I[CompRentalCharge] /\ -(arg3;arg3~))
    THEN INSERT INTO arg3[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

        (TO MAINTAIN -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM
(MAINAINING -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM UNI arg3:::
(MAINAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Comp
(MAINAINING -(arg1~;arg1) \/ I[Amount] FROM UNI arg1:::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1:::CompRentalCharge*
(MAINAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2:::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2:::CompRentalCharge*
(MAINAINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3:::CompRentalCharge*Amount)
(MAINAINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3:::CompRentalCharge*

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(compRental
    THEN INSERT INTO compRentalCharge[CompRentalCharge*Amount]
        SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

        (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRentalC
PICK a,b FROM compRentalCharge~;(I[CompRentalCharge] /\ -(compRentalCha
    THEN INSERT INTO compRentalCharge[CompRentalCharge*Amount]
        SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

        (TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRentalC
(MAINAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM C
NEW x:Amount;
    INSERT INTO compRentalCharge[CompRentalCharge*Amount]

```

```

SELECTFROM (I[CompRentalCharge] /\ -(compRentalCharge;compRentalCharge~))*'

(TO MAINTAIN -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM
(MAINTAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM C
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(arg1;arg1~
THEN INSERT INTO arg1[CompRentalCharge*Amount]
SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

(TO MAINTAIN -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM UN
PICK a,b FROM arg1~;(I[CompRentalCharge] /\ -(arg1;arg1~))
THEN INSERT INTO arg1[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

(TO MAINTAIN -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM UN
(MAINTAINING -I[CompRentalCharge] \/ arg1;I[Amount];arg1~ FROM UNI arg1::CompR
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(arg2;arg2~
THEN INSERT INTO arg2[CompRentalCharge*Amount]
SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

(TO MAINTAIN -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM UN
PICK a,b FROM arg2~;(I[CompRentalCharge] /\ -(arg2;arg2~))
THEN INSERT INTO arg2[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

(TO MAINTAIN -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM UN
(MAINTAINING -I[CompRentalCharge] \/ arg2;I[Amount];arg2~ FROM UNI arg2::CompR
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompRentalCharge] /\ -(arg3;arg3~
THEN INSERT INTO arg3[CompRentalCharge*Amount]
SELECTFROM 'a'[CompRentalCharge]*'b'[Amount]

(TO MAINTAIN -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM UN
PICK a,b FROM arg3~;(I[CompRentalCharge] /\ -(arg3;arg3~))
THEN INSERT INTO arg3[CompRentalCharge*Amount]
SELECTFROM 'b'[CompRentalCharge]*'a'[Amount]

(TO MAINTAIN -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM UN
(MAINTAINING -I[CompRentalCharge] \/ arg3;I[Amount];arg3~ FROM UNI arg3::CompR
(MAINTAINING -I[CompRentalCharge] \/ compRentalCharge;compRentalCharge~ FROM Compute
(MAINTAINING -(arg1~;arg1) \/ I[Amount] FROM UNI arg1::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg1;arg1~ FROM TOT arg1::CompRentalCharge*Amount
(MAINTAINING -(arg2~;arg2) \/ I[Amount] FROM UNI arg2::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg2;arg2~ FROM TOT arg2::CompRentalCharge*Amount
(MAINTAINING -(arg3~;arg3) \/ I[Amount] FROM UNI arg3::CompRentalCharge*Amount)
(MAINTAINING -I[CompRentalCharge] \/ arg3;arg3~ FROM TOT arg3::CompRentalCharge*Amount

```

<-----End Derivation --

ON DELETE Delta FROM Isn{dety=CompRentalCharge} EXECUTE -- (ECA rule 128)

```

ALL of ONE OF DELETE FROM arg3[CompRentalCharge*Amount]
    SELECTFROM (-I[CompRentalCharge] /\ arg3;arg3~ /\ arg2;arg2~ /\ a

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompR
DELETE FROM arg2[CompRentalCharge*Amount]
    SELECTFROM (-I[CompRentalCharge] /\ arg3;arg3~ /\ arg2;arg2~ /\ a

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompR
DELETE FROM arg1[CompRentalCharge*Amount]
    SELECTFROM (-I[CompRentalCharge] /\ arg3;arg3~ /\ arg2;arg2~ /\ a

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompR
(MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCha
DELETE FROM arg1[CompRentalCharge*Amount]
    SELECTFROM Delta;V[CompRentalCharge*Amount]

DELETE FROM arg2[CompRentalCharge*Amount]
    SELECTFROM Delta;V[CompRentalCharge*Amount]

DELETE FROM arg3[CompRentalCharge*Amount]
    SELECTFROM Delta;V[CompRentalCharge*Amount]

DELETE FROM compRentalCharge[CompRentalCharge*Amount]
    SELECTFROM Delta;V[CompRentalCharge*Amount]

(MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FR

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM arg3[CompRentalCharge*Amount]
    SELECTFROM (-I[CompRentalCharge] /\ arg3;arg3~ /\ arg2;arg2~ /\ arg1;a

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRental
DELETE FROM arg2[CompRentalCharge*Amount]
    SELECTFROM (-I[CompRentalCharge] /\ arg3;arg3~ /\ arg2;arg2~ /\ arg1;a

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRental
DELETE FROM arg1[CompRentalCharge*Amount]
    SELECTFROM (-I[CompRentalCharge] /\ arg3;arg3~ /\ arg2;arg2~ /\ arg1;a

    (TO MAINTAIN -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRental
(MAINTAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge]
DELETE FROM arg1[CompRentalCharge*Amount]
    SELECTFROM Delta;V[CompRentalCharge*Amount]

DELETE FROM arg2[CompRentalCharge*Amount]
    SELECTFROM Delta;V[CompRentalCharge*Amount]

```

```

DELETE FROM arg3[CompRentalCharge*Amount]
SELECTFROM Delta;V[CompRentalCharge*Amount]

DELETE FROM compRentalCharge[CompRentalCharge*Amount]
SELECTFROM Delta;V[CompRentalCharge*Amount]

(MAINAINING -(arg3;arg3~ /\ arg2;arg2~ /\ arg1;arg1~) \/ I[CompRentalCharge] FROM Un

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=Integer} EXECUTE    -- (ECA rule 130)
ONE OF DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM (rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);c

      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rentalPeriod;(-I[Integer] /\ rentalPeriod~;(rcStartDate;earli

      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
DELETE FROM earliestDate[CompNrDays*Date]
      SELECTFROM compNrDays;(-I[Integer] /\ compNrDays~;(earliestDate;rcStartD

      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM rentalPeriod;(-I[Integer] /\ rentalPeriod~;(rcStartDate;earli

      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
DELETE FROM latestDate[CompNrDays*Date]
      SELECTFROM compNrDays;(-I[Integer] /\ compNrDays~;(earliestDate;rcStartD

      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
DELETE FROM compNrDays[CompNrDays*Integer]
      SELECTFROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate~);r

      (TO MAINTAIN -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffD
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM (rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrEx

      (TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM rentalExcessPeriod;(-I[Integer] /\ rentalExcessPeriod~;(rcDro

      (TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
DELETE FROM lastDate[CompNrExcessDays*Date]
      SELECTFROM compNrExcessDays;(-I[Integer] /\ compNrExcessDays~;(lastDate;

      (TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
DELETE FROM rcEndDate[RentalContract*Date]

```



```

SELECTFROM rentalExcessPeriod;(-I[Integer] /\ rentalExcessPeriod~;(rcDrope

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM compNrExcessDays;(-I[Integer] /\ compNrExcessDays~;(lastDate;

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM (lastDate;rcDroppedOffDate~ /\ firstDate;rcEndDate~);rentalEx

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndD
DELETE FROM compNrDays[CompNrDays*Integer]
SELECTFROM compNrDays;(-I[Integer] /\ compNrDays~;compNrDays)

(TO MAINTAIN -(compNrDays~;I[CompNrDays];compNrDays) \/ I[Integer] FROM
DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM compNrExcessDays;(-I[Integer] /\ compNrExcessDays~;compNrExce

(TO MAINTAIN -(compNrExcessDays~;I[CompNrExcessDays];compNrExcessDays) \
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM rentalPeriod;(-I[Integer] /\ rentalPeriod~;rentalPeriod)

(TO MAINTAIN -(rentalPeriod~;rentalPeriod) \/ I[Integer] FROM UNI rental
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM rentalExcessPeriod;(-I[Integer] /\ rentalExcessPeriod~;rental

(TO MAINTAIN -(rentalExcessPeriod~;rentalExcessPeriod) \/ I[Integer] FROM
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM ctcNrOfDays;(-I[Integer] /\ ctcNrOfDays~;ctcNrOfDays)

(TO MAINTAIN -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfD
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM V[RentalContract*Integer];Delta

DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM V[RentalContract*Integer];Delta

DELETE FROM compNrDays[CompNrDays*Integer]
SELECTFROM V[CompNrDays*Integer];Delta

DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM V[CompTariffedCharge*Integer];Delta

DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM V[CompNrExcessDays*Integer];Delta

(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compN
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcess
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of day
(MAINTAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM Comp

```

```

(MAINTEINING -(rentalPeriod~;rentalPeriod) \/ I[Integer] FROM UNI rentalPeriod::I
(MAINTEINING -(rentalExcessPeriod~;rentalExcessPeriod) \/ I[Integer] FROM UNI rentalExcessPeriod::I
(MAINTEINING -(compNrDays~;compNrDays) \/ I[Integer] FROM UNI compNrDays::CompNrDays
(MAINTEINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompNrDays
(MAINTEINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays::CompNrDays
(MAINTEINING -(compNrExcessDays~;compNrExcessDays) \/ I[Integer] FROM UNI compNrExcessDays::CompNrExcessDays

```

----- Derivation ----->

```

ONE OF DELETE FROM rentalPeriod[RentalContract*Integer]
      SELECTFROM (rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
DELETE FROM rcStartDate[RentalContract*Date]
      SELECTFROM rentalPeriod;(-I[Integer] /\ rentalPeriod~;(rcStartDate;earliestDate~;latestDate~)

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
DELETE FROM earliestDate[CompNrDays*Date]
      SELECTFROM compNrDays;(-I[Integer] /\ compNrDays~;(earliestDate;rcStartDate~;latestDate~)

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM rentalPeriod;(-I[Integer] /\ rentalPeriod~;(rcStartDate;earliestDate~;latestDate~)

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
DELETE FROM latestDate[CompNrDays*Date]
      SELECTFROM compNrDays;(-I[Integer] /\ compNrDays~;(earliestDate;rcStartDate~;latestDate~)

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
DELETE FROM compNrDays[CompNrDays*Integer]
      SELECTFROM (earliestDate;rcStartDate~ /\ latestDate;rcDroppedOffDate~);rentalPeriod

      (TO MAINTAIN  -(rentalPeriod~;(rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~)
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
      SELECTFROM (rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays

      (TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
DELETE FROM rcDroppedOffDate[RentalContract*Date]
      SELECTFROM rentalExcessPeriod;(-I[Integer] /\ rentalExcessPeriod~;(rcDroppedOffDate;lastDate~;rcEndDate~)

      (TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
DELETE FROM lastDate[CompNrExcessDays*Date]
      SELECTFROM compNrExcessDays;(-I[Integer] /\ compNrExcessDays~;(lastDate;rcDroppedOffDate~;rcEndDate~)

      (TO MAINTAIN  -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~)
DELETE FROM rcEndDate[RentalContract*Date]
      SELECTFROM rentalExcessPeriod;(-I[Integer] /\ rentalExcessPeriod~;(rcDroppedOffDate;lastDate~;rcEndDate~)

```

```

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;f
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM compNrExcessDays;(-I[Integer] /\ compNrExcessDays~;(lastDate;rcDro

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;f
DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM (lastDate;rcDroppedOffDate~ /\ firstDate;rcEndDate~);rentalExcessP

(TO MAINTAIN -(rentalExcessPeriod~;(rcDroppedOffDate;lastDate~ /\ rcEndDate;f
DELETE FROM compNrDays[CompNrDays*Integer]
SELECTFROM compNrDays;(-I[Integer] /\ compNrDays~;compNrDays)

(TO MAINTAIN -(compNrDays~;I[CompNrDays];compNrDays) \/ I[Integer] FROM Compu
DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM compNrExcessDays;(-I[Integer] /\ compNrExcessDays~;compNrExcessDay

(TO MAINTAIN -(compNrExcessDays~;I[CompNrExcessDays];compNrExcessDays) \/ I[I
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM rentalPeriod;(-I[Integer] /\ rentalPeriod~;rentalPeriod)

(TO MAINTAIN -(rentalPeriod~;rentalPeriod) \/ I[Integer] FROM UNI rentalPerio
DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM rentalExcessPeriod;(-I[Integer] /\ rentalExcessPeriod~;rentalExces

(TO MAINTAIN -(rentalExcessPeriod~;rentalExcessPeriod) \/ I[Integer] FROM UNI
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM ctcNrOfDays;(-I[Integer] /\ ctcNrOfDays~;ctcNrOfDays)

(TO MAINTAIN -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::
DELETE FROM rentalPeriod[RentalContract*Integer]
SELECTFROM V[RentalContract*Integer];Delta

DELETE FROM rentalExcessPeriod[RentalContract*Integer]
SELECTFROM V[RentalContract*Integer];Delta

DELETE FROM compNrDays[CompNrDays*Integer]
SELECTFROM V[CompNrDays*Integer];Delta

DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
SELECTFROM V[CompTariffedCharge*Integer];Delta

DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM V[CompNrExcessDays*Integer];Delta

(MAINTAINING -((rcStartDate;earliestDate~ /\ rcDroppedOffDate;latestDate~);compNrDays
(MAINTAINING -((rcDroppedOffDate;lastDate~ /\ rcEndDate;firstDate~);compNrExcessDays)
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days in
(MAINTAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM Compute
(MAINTAINING -(rentalPeriod~;rentalPeriod) \/ I[Integer] FROM UNI rentalPeriod::Renta
(MAINTAINING -(rentalExcessPeriod~;rentalExcessPeriod) \/ I[Integer] FROM UNI rentalE

```

```

(MAINTEINING -(compNrDays~;compNrDays) \/ I[Integer] FROM UNI compNrDays::CompNrDays*
(MAINTEINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompTari
(MAINTEINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays:
(MAINTEINING -(compNrExcessDays~;compNrExcessDays) \/ I[Integer] FROM UNI compNrExces

```

<-----End Derivation --

```

ON INSERT Delta IN Isn{dety=CompNrDays} EXECUTE -- (ECA rule 131)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrDays] /\ -(compNrDays;
      THEN INSERT INTO compNrDays[CompNrDays*Integer]
      SELECTFROM 'a'[CompNrDays]*'b'[Integer]

      (TO MAINTAIN -I[CompNrDays] \/ compNrDays;compNrDays~ FROM C
      PICK a,b FROM compNrDays~;(I[CompNrDays] /\ -(compNrDays;compNrDay
      THEN INSERT INTO compNrDays[CompNrDays*Integer]
      SELECTFROM 'b'[CompNrDays]*'a'[Integer]

      (TO MAINTAIN -I[CompNrDays] \/ compNrDays;compNrDays~ FROM C
(MAINTEINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number
NEW x:Integer;
      INSERT INTO compNrDays[CompNrDays*Integer]
      SELECTFROM (I[CompNrDays] /\ -(compNrDays;compNrDays~))*'x'[Integer]

      (TO MAINTAIN -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute num
(MAINTEINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrDays] /\ -(earliestDate
      THEN INSERT INTO earliestDate[CompNrDays*Date]
      SELECTFROM 'a'[CompNrDays]*'b'[Date]

      (TO MAINTAIN -I[CompNrDays] \/ earliestDate;I[Date];earliest
      PICK a,b FROM earliestDate~;(I[CompNrDays] /\ -(earliestDate;earli
      THEN INSERT INTO earliestDate[CompNrDays*Date]
      SELECTFROM 'b'[CompNrDays]*'a'[Date]

      (TO MAINTAIN -I[CompNrDays] \/ earliestDate;I[Date];earliest
(MAINTEINING -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UN
NEW x:Date;
      INSERT INTO earliestDate[CompNrDays*Date]
      SELECTFROM (I[CompNrDays] /\ -(earliestDate;earliestDate~))*'x'[Date]

      (TO MAINTAIN -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM
(MAINTEINING -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UN
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrDays] /\ -(latestDate;
      THEN INSERT INTO latestDate[CompNrDays*Date]
      SELECTFROM 'a'[CompNrDays]*'b'[Date]

      (TO MAINTAIN -I[CompNrDays] \/ latestDate;I[Date];latestDate
      PICK a,b FROM latestDate~;(I[CompNrDays] /\ -(latestDate;latestDate

```

```

THEN INSERT INTO latestDate[CompNrDays*Date]
SELECTFROM 'b'[CompNrDays]*'a'[Date]

(TO MAINTAIN -I[CompNrDays] \/ latestDate;I[Date];latestDate~
(MAINTAINING -I[CompNrDays] \/ latestDate;I[Date];latestDate~ FROM UNI la
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of day
(MAINTAINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::Comp
(MAINTAINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate:
(MAINTAINING -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDay
(MAINTAINING -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNr

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrDays] /\ -(compNrDays;compNrDays~))
THEN INSERT INTO compNrDays[CompNrDays*Integer]
SELECTFROM 'a'[CompNrDays]*'b'[Integer]

(TO MAINTAIN -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days
PICK a,b FROM compNrDays~;(I[CompNrDays] /\ -(compNrDays;compNrDays~))
THEN INSERT INTO compNrDays[CompNrDays*Integer]
SELECTFROM 'b'[CompNrDays]*'a'[Integer]

(TO MAINTAIN -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days
NEW x:Integer;
INSERT INTO compNrDays[CompNrDays*Integer]
SELECTFROM (I[CompNrDays] /\ -(compNrDays;compNrDays~))*'x'[Integer]

(TO MAINTAIN -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrDays] /\ -(earliestDate;earliestDate~))
THEN INSERT INTO earliestDate[CompNrDays*Date]
SELECTFROM 'a'[CompNrDays]*'b'[Date]

(TO MAINTAIN -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~
PICK a,b FROM earliestDate~;(I[CompNrDays] /\ -(earliestDate;earliestDate~))
THEN INSERT INTO earliestDate[CompNrDays*Date]
SELECTFROM 'b'[CompNrDays]*'a'[Date]

(TO MAINTAIN -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~
(MAINTAINING -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UNI earliestDate
NEW x:Date;
INSERT INTO earliestDate[CompNrDays*Date]
SELECTFROM (I[CompNrDays] /\ -(earliestDate;earliestDate~))*'x'[Date]

(TO MAINTAIN -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UNI earliestDate
(MAINTAINING -I[CompNrDays] \/ earliestDate;I[Date];earliestDate~ FROM UNI earliestDate
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrDays] /\ -(latestDate;latestDate~))

```

```

THEN INSERT INTO latestDate[CompNrDays*Date]
  SELECTFROM 'a' [CompNrDays]*'b' [Date]

  (TO MAINTAIN -I[CompNrDays] \/ latestDate;I[Date];latestDate~ FROM
PICK a,b FROM latestDate~;(I[CompNrDays] /\ -(latestDate;latestDate~))
THEN INSERT INTO latestDate[CompNrDays*Date]
  SELECTFROM 'b' [CompNrDays]*'a' [Date]

  (TO MAINTAIN -I[CompNrDays] \/ latestDate;I[Date];latestDate~ FROM
(MAINTAINING -I[CompNrDays] \/ latestDate;I[Date];latestDate~ FROM UNI latestD
(MAINTAINING -I[CompNrDays] \/ compNrDays;compNrDays~ FROM Compute number of days in
(MAINTAINING -(earliestDate~;earliestDate) \/ I[Date] FROM UNI earliestDate::CompNrDa
(MAINTAINING -I[CompNrDays] \/ earliestDate;earliestDate~ FROM TOT earliestDate::Comp
(MAINTAINING -(latestDate~;latestDate) \/ I[Date] FROM UNI latestDate::CompNrDays*Dat
(MAINTAINING -I[CompNrDays] \/ latestDate;latestDate~ FROM TOT latestDate::CompNrDays

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=CompNrDays} EXECUTE -- (ECA rule 132)
ALL of ONE OF DELETE FROM earliestDate[CompNrDays*Date]
  SELECTFROM (-I[CompNrDays] /\ earliestDate;earliestDate~ /\ latestDate;latestDate~)
  (TO MAINTAIN -(earliestDate;earliestDate~ /\ latestDate;latestDate~)
DELETE FROM latestDate[CompNrDays*Date]
  SELECTFROM (-I[CompNrDays] /\ earliestDate;earliestDate~ /\ latestDate;latestDate~)
  (TO MAINTAIN -(earliestDate;earliestDate~ /\ latestDate;latestDate~)
(MAINTAINING -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]
DELETE FROM earliestDate[CompNrDays*Date]
  SELECTFROM Delta;V[CompNrDays*Date]

DELETE FROM latestDate[CompNrDays*Date]
  SELECTFROM Delta;V[CompNrDays*Date]

DELETE FROM compNrDays[CompNrDays*Integer]
  SELECTFROM Delta;V[CompNrDays*Integer]

(MAINTAINING -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]

----- Derivation ----->

```

```

ALL of ONE OF DELETE FROM earliestDate[CompNrDays*Date]
  SELECTFROM (-I[CompNrDays] /\ earliestDate;earliestDate~ /\ latestDate;latestDate~)
  (TO MAINTAIN -(earliestDate;earliestDate~ /\ latestDate;latestDate~)
DELETE FROM latestDate[CompNrDays*Date]
  SELECTFROM (-I[CompNrDays] /\ earliestDate;earliestDate~ /\ latestDate;latestDate~)

```

```

        (TO MAINTAIN  -(earliestDate;earliestDate~ /\ latestDate;latestDate~)\
(MAINAINING  -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[Comp
DELETE FROM earliestDate[CompNrDays*Date]
SELECTFROM Delta;V[CompNrDays*Date]

DELETE FROM latestDate[CompNrDays*Date]
SELECTFROM Delta;V[CompNrDays*Date]

DELETE FROM compNrDays[CompNrDays*Integer]
SELECTFROM Delta;V[CompNrDays*Integer]

(MAINAINING  -(earliestDate;earliestDate~ /\ latestDate;latestDate~) \/ I[CompNrDays]

<-----End Derivation --

```

```

ON INSERT Delta IN Isn{dety=CompTariffedCharge} EXECUTE      -- (ECA rule 133)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompTariffedCharge] /\ -(comp
        THEN INSERT INTO compTariffedCharge[CompTariffedCharge*Amount]
        SELECTFROM 'a'[CompTariffedCharge]*'b'[Amount]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ compTariffedCharge;com
PICK a,b FROM compTariffedCharge~;(I[CompTariffedCharge] /\ -(comp
        THEN INSERT INTO compTariffedCharge[CompTariffedCharge*Amount]
        SELECTFROM 'b'[CompTariffedCharge]*'a'[Amount]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ compTariffedCharge;com
(MAINAINING  -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCha
NEW x:Amount;
        INSERT INTO compTariffedCharge[CompTariffedCharge*Amount]
        SELECTFROM (I[CompTariffedCharge] /\ -(compTariffedCharge;compTariffed

        (TO MAINTAIN  -I[CompTariffedCharge] \/ compTariffedCharge;compTariffed
(MAINAINING  -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCha
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompTariffedCharge] /\ -(ctc
        THEN INSERT INTO ctcNrOfDays[CompTariffedCharge*Integer]
        SELECTFROM 'a'[CompTariffedCharge]*'b'[Integer]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer]
PICK a,b FROM ctcNrOfDays~;(I[CompTariffedCharge] /\ -(ctcNrOfDays
        THEN INSERT INTO ctcNrOfDays[CompTariffedCharge*Integer]
        SELECTFROM 'b'[CompTariffedCharge]*'a'[Integer]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer]
(MAINAINING  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays
NEW x:Integer;
        INSERT INTO ctcNrOfDays[CompTariffedCharge*Integer]
        SELECTFROM (I[CompTariffedCharge] /\ -(ctcNrOfDays;ctcNrOfDays~))*'x'[

```

```

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays
      (MAINTAINING -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompTariffedCharge] /\ -(ctcNrOfDays
      THEN INSERT INTO ctcDailyAmount[CompTariffedCharge*Amount]
      SELECTFROM 'a'[CompTariffedCharge]*'b'[Amount]

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount]
      PICK a,b FROM ctcDailyAmount~;(I[CompTariffedCharge] /\ -(ctcNrOfDays
      THEN INSERT INTO ctcDailyAmount[CompTariffedCharge*Amount]
      SELECTFROM 'b'[CompTariffedCharge]*'a'[Amount]

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount]
      (MAINTAINING -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount];ctcDailyAmount
      (MAINTAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FROM
      (MAINTAINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::Comp
      (MAINTAINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays
      (MAINTAINING -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmount
      (MAINTAINING -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDailyAmount

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompTariffedCharge] /\ -(compTariffedCharge
      THEN INSERT INTO compTariffedCharge[CompTariffedCharge*Amount]
      SELECTFROM 'a'[CompTariffedCharge]*'b'[Amount]

      (TO MAINTAIN  -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge
      PICK a,b FROM compTariffedCharge~;(I[CompTariffedCharge] /\ -(compTariffedCharge
      THEN INSERT INTO compTariffedCharge[CompTariffedCharge*Amount]
      SELECTFROM 'b'[CompTariffedCharge]*'a'[Amount]

      (TO MAINTAIN  -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge
      (MAINTAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~
      NEW x:Amount;
      INSERT INTO compTariffedCharge[CompTariffedCharge*Amount]
      SELECTFROM (I[CompTariffedCharge] /\ -(compTariffedCharge;compTariffedCharge

      (TO MAINTAIN  -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge
      (MAINTAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompTariffedCharge] /\ -(ctcNrOfDays
      THEN INSERT INTO ctcNrOfDays[CompTariffedCharge*Integer]
      SELECTFROM 'a'[CompTariffedCharge]*'b'[Integer]

      (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays
      PICK a,b FROM ctcNrOfDays~;(I[CompTariffedCharge] /\ -(ctcNrOfDays;ctcNrOfDays
      THEN INSERT INTO ctcNrOfDays[CompTariffedCharge*Integer]
      SELECTFROM 'b'[CompTariffedCharge]*'a'[Integer]

```



```

        (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays~
(MAINAINING -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays~ FROM TOT ctcNrOfDays:
NEW x:Integer;
        INSERT INTO ctcNrOfDays[CompTariffedCharge*Integer]
        SELECTFROM (I[CompTariffedCharge] /\ -(ctcNrOfDays;ctcNrOfDays~))*'x'[Integer]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays~
(MAINAINING -I[CompTariffedCharge] \/ ctcNrOfDays;I[Integer];ctcNrOfDays~ FROM TOT ctcNrOfDays:
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompTariffedCharge] /\ -(ctcDailyAmount;ctcDailyAmount~
        THEN INSERT INTO ctcDailyAmount[CompTariffedCharge*Amount]
        SELECTFROM 'a'[CompTariffedCharge]*'b'[Amount]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount];ctcDailyAmount~
        PICK a,b FROM ctcDailyAmount~;(I[CompTariffedCharge] /\ -(ctcDailyAmount;ctcDailyAmount~
        THEN INSERT INTO ctcDailyAmount[CompTariffedCharge*Amount]
        SELECTFROM 'b'[CompTariffedCharge]*'a'[Amount]

        (TO MAINTAIN  -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount];ctcDailyAmount~
(MAINAINING -I[CompTariffedCharge] \/ ctcDailyAmount;I[Amount];ctcDailyAmount~ FROM TOT ctcDailyAmount:
(MAINAINING -I[CompTariffedCharge] \/ compTariffedCharge;compTariffedCharge~ FROM TOT ctcDailyAmount:
(MAINAINING -(ctcNrOfDays~;ctcNrOfDays) \/ I[Integer] FROM UNI ctcNrOfDays::CompTariffedCharge
(MAINAINING -I[CompTariffedCharge] \/ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcNrOfDays:
(MAINAINING -(ctcDailyAmount~;ctcDailyAmount) \/ I[Amount] FROM UNI ctcDailyAmount::CompTariffedCharge
(MAINAINING -I[CompTariffedCharge] \/ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDailyAmount:

<-----End Derivation --

ON DELETE Delta FROM Isn{dety=CompTariffedCharge} EXECUTE  -- (ECA rule 134)
ALL of ONE OF DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
        SELECTFROM (-I[CompTariffedCharge] /\ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDailyAmount:

        (TO MAINTAIN  -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
        SELECTFROM (-I[CompTariffedCharge] /\ ctcDailyAmount;ctcDailyAmount~ FROM TOT ctcDailyAmount:

        (TO MAINTAIN  -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~
(MAINAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~ FROM TOT ctcDailyAmount:
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
        SELECTFROM Delta;V[CompTariffedCharge*Integer]

DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
        SELECTFROM Delta;V[CompTariffedCharge*Amount]

DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
        SELECTFROM Delta;V[CompTariffedCharge*Amount]

(MAINAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/ I[Integer]
----- Derivation ----->

```

```

ALL of ONE OF DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
      SELECTFROM (-I[CompTariffedCharge] /\ ctcDailyAmount;ctcDailyAmount~ /

      (TO MAINTAIN -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDa
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
      SELECTFROM (-I[CompTariffedCharge] /\ ctcDailyAmount;ctcDailyAmount~ /

      (TO MAINTAIN -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDa
(MAINTAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/
DELETE FROM ctcNrOfDays[CompTariffedCharge*Integer]
      SELECTFROM Delta;V[CompTariffedCharge*Integer]

DELETE FROM ctcDailyAmount[CompTariffedCharge*Amount]
      SELECTFROM Delta;V[CompTariffedCharge*Amount]

DELETE FROM compTariffedCharge[CompTariffedCharge*Amount]
      SELECTFROM Delta;V[CompTariffedCharge*Amount]

(MAINTAINING -(ctcDailyAmount;ctcDailyAmount~ /\ ctcNrOfDays;ctcNrOfDays~) \/ I[CompT

<-----End Derivation --

```

```

ON INSERT Delta IN Isn{dety=CompNrExcessDays} EXECUTE -- (ECA rule 135)
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrExcessDays] /\ -(compNr
      THEN INSERT INTO compNrExcessDays[CompNrExcessDays*Integer]
      SELECTFROM 'a'[CompNrExcessDays]*'b'[Integer]

      (TO MAINTAIN -I[CompNrExcessDays] \/ compNrExcessDays;compNr
PICK a,b FROM compNrExcessDays~;(I[CompNrExcessDays] /\ -(compNrEx
      THEN INSERT INTO compNrExcessDays[CompNrExcessDays*Integer]
      SELECTFROM 'b'[CompNrExcessDays]*'a'[Integer]

      (TO MAINTAIN -I[CompNrExcessDays] \/ compNrExcessDays;compNr
(MAINTAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ F
NEW x:Integer;
      INSERT INTO compNrExcessDays[CompNrExcessDays*Integer]
      SELECTFROM (I[CompNrExcessDays] /\ -(compNrExcessDays;compNrExcessDays

      (TO MAINTAIN -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays
(MAINTAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ F
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrExcessDays] /\ -(first
      THEN INSERT INTO firstDate[CompNrExcessDays*Date]
      SELECTFROM 'a'[CompNrExcessDays]*'b'[Date]

      (TO MAINTAIN -I[CompNrExcessDays] \/ firstDate;I[Date];first
PICK a,b FROM firstDate~;(I[CompNrExcessDays] /\ -(firstDate;first
      THEN INSERT INTO firstDate[CompNrExcessDays*Date]

```

```

SELECTFROM 'b'[CompNrExcessDays]*'a'[Date]

      (TO MAINTAIN -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~
(MAINAINING -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI
NEW x:Date;
      INSERT INTO firstDate[CompNrExcessDays*Date]
      SELECTFROM (I[CompNrExcessDays] /\ -(firstDate;firstDate~))*'x'[Date]

      (TO MAINTAIN -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI
(MAINAINING -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrExcessDays] /\ -(lastDate;
      THEN INSERT INTO lastDate[CompNrExcessDays*Date]
      SELECTFROM 'a'[CompNrExcessDays]*'b'[Date]

      (TO MAINTAIN -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~
PICK a,b FROM lastDate~;(I[CompNrExcessDays] /\ -(lastDate;lastDate~
      THEN INSERT INTO lastDate[CompNrExcessDays*Date]
      SELECTFROM 'b'[CompNrExcessDays]*'a'[Date]

      (TO MAINTAIN -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~
(MAINAINING -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~ FROM UNI
(MAINAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM CompNrExcessDays
(MAINAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays
(MAINAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrExcessDays
(MAINAINING -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcessDays
(MAINAINING -I[CompNrExcessDays] \/ lastDate;lastDate~ FROM TOT lastDate::CompNrExcessDays

```

----- Derivation ----->

```

ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrExcessDays] /\ -(compNrExcessDays;
      THEN INSERT INTO compNrExcessDays[CompNrExcessDays*Integer]
      SELECTFROM 'a'[CompNrExcessDays]*'b'[Integer]

      (TO MAINTAIN -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~
PICK a,b FROM compNrExcessDays~;(I[CompNrExcessDays] /\ -(compNrExcessDays;
      THEN INSERT INTO compNrExcessDays[CompNrExcessDays*Integer]
      SELECTFROM 'b'[CompNrExcessDays]*'a'[Integer]

      (TO MAINTAIN -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~
(MAINAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM C
NEW x:Integer;
      INSERT INTO compNrExcessDays[CompNrExcessDays*Integer]
      SELECTFROM (I[CompNrExcessDays] /\ -(compNrExcessDays;compNrExcessDays~))*'x'

      (TO MAINTAIN -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM C
(MAINAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM C
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrExcessDays] /\ -(firstDate;
      THEN INSERT INTO firstDate[CompNrExcessDays*Date]

```

```

SELECTFROM 'a' [CompNrExcessDays]*'b' [Date]

      (TO MAINTAIN  -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~
PICK a,b FROM firstDate~;(I[CompNrExcessDays] /\ -(firstDate;firstDate~
THEN INSERT INTO firstDate[CompNrExcessDays*Date]
      SELECTFROM 'b' [CompNrExcessDays]*'a' [Date]

      (TO MAINTAIN  -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI fir
NEW x:Date;
      INSERT INTO firstDate[CompNrExcessDays*Date]
      SELECTFROM (I[CompNrExcessDays] /\ -(firstDate;firstDate~))*'x' [Date]

      (TO MAINTAIN  -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;I[Date];firstDate~ FROM UNI fir
ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[CompNrExcessDays] /\ -(lastDate;l
      THEN INSERT INTO lastDate[CompNrExcessDays*Date]
      SELECTFROM 'a' [CompNrExcessDays]*'b' [Date]

      (TO MAINTAIN  -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~ F
PICK a,b FROM lastDate~;(I[CompNrExcessDays] /\ -(lastDate;lastDate~))
      THEN INSERT INTO lastDate[CompNrExcessDays*Date]
      SELECTFROM 'b' [CompNrExcessDays]*'a' [Date]

      (TO MAINTAIN  -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~ F
      (MAINTAINING -I[CompNrExcessDays] \/ lastDate;I[Date];lastDate~ FROM UNI lastD
(MAINTAINING -I[CompNrExcessDays] \/ compNrExcessDays;compNrExcessDays~ FROM Compute
(MAINTAINING -(firstDate~;firstDate) \/ I[Date] FROM UNI firstDate::CompNrExcessDays*
(MAINTAINING -I[CompNrExcessDays] \/ firstDate;firstDate~ FROM TOT firstDate::CompNrE
(MAINTAINING -(lastDate~;lastDate) \/ I[Date] FROM UNI lastDate::CompNrExcessDays*Dat
(MAINTAINING -I[CompNrExcessDays] \/ lastDate;lastDate~ FROM TOT lastDate::CompNrExce

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=CompNrExcessDays} EXECUTE      -- (ECA rule 136)
ALL of ONE OF DELETE FROM lastDate[CompNrExcessDays*Date]
      SELECTFROM (-I[CompNrExcessDays] /\ lastDate;lastDate~ /\ firstDate

      (TO MAINTAIN  -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[C
DELETE FROM firstDate[CompNrExcessDays*Date]
      SELECTFROM (-I[CompNrExcessDays] /\ lastDate;lastDate~ /\ firstDate

      (TO MAINTAIN  -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[C
(MAINTAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExc
DELETE FROM firstDate[CompNrExcessDays*Date]
      SELECTFROM Delta;V[CompNrExcessDays*Date]

DELETE FROM lastDate[CompNrExcessDays*Date]

```

```

SELECTFROM Delta;V[CompNrExcessDays*Date]

DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM Delta;V[CompNrExcessDays*Integer]

(MAINAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDays;

```

----- Derivation ----->

```

ALL of ONE OF DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM (-I[CompNrExcessDays] /\ lastDate;lastDate~ /\ firstDate;fi

(TO MAINTAIN -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNr
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM (-I[CompNrExcessDays] /\ lastDate;lastDate~ /\ firstDate;fi

(TO MAINTAIN -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNr
(MAINAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDa
DELETE FROM firstDate[CompNrExcessDays*Date]
SELECTFROM Delta;V[CompNrExcessDays*Date]

DELETE FROM lastDate[CompNrExcessDays*Date]
SELECTFROM Delta;V[CompNrExcessDays*Date]

DELETE FROM compNrExcessDays[CompNrExcessDays*Integer]
SELECTFROM Delta;V[CompNrExcessDays*Integer]

(MAINAINING -(lastDate;lastDate~ /\ firstDate;firstDate~) \/ I[CompNrExcessDays] FRO

<-----End Derivation --

```

```

ON INSERT Delta IN Isn{dety=DistanceBetweenLocations} EXECUTE -- (ECA rule 1.
ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[DistanceBetweenLocations] /\
THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM 'a'[DistanceBetweenLocations]*'b'[Amount]

(TO MAINTAIN -I[DistanceBetweenLocations] \/ distpenalty;I[A
PICK a,b FROM distpenalty~;(I[DistanceBetweenLocations] /\ -(distp
THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Amount]

(TO MAINTAIN -I[DistanceBetweenLocations] \/ distpenalty;I[A
(MAINAINING -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpe
NEW x:Amount;
INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
SELECTFROM (I[DistanceBetweenLocations] /\ -(distpenalty;distpenalty~)

```

```

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];dist
      (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpe
      ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[DistanceBetweenLocations] /\
      THEN INSERT INTO distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM 'a'[DistanceBetweenLocations]*'b'[Branch]

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distbranch;dist
      PICK a,b FROM distbranch~;(I[DistanceBetweenLocations] /\ -(distbr
      THEN INSERT INTO distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Branch]

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distbranch;dist
      (MAINTAINING -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM '
      NEW x:Branch;
      INSERT INTO distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM (I[DistanceBetweenLocations] /\ -(distbranch;distbranch~))*

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FR
      (MAINTAINING -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM '
      ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[DistanceBetweenLocations] /\
      THEN INSERT INTO distance[DistanceBetweenLocations*Distance]
      SELECTFROM 'a'[DistanceBetweenLocations]*'b'[Distance]

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distance;I[Dist
      PICK a,b FROM distance~;(I[DistanceBetweenLocations] /\ -(distance
      THEN INSERT INTO distance[DistanceBetweenLocations*Distance]
      SELECTFROM 'b'[DistanceBetweenLocations]*'a'[Distance]

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distance;I[Dist
      (MAINTAINING -I[DistanceBetweenLocations] \/ distance;I[Distance];distanc
      NEW x:Distance;
      INSERT INTO distance[DistanceBetweenLocations*Distance]
      SELECTFROM (I[DistanceBetweenLocations] /\ -(distance;distance~))*'x'[

      (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distance;I[Distance];dist
      (MAINTAINING -I[DistanceBetweenLocations] \/ distance;I[Distance];distanc
      (MAINTAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::Dist
      (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT d
      (MAINTAINING -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM TOT dist
      (MAINTAINING -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBet
      (MAINTAINING -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distanc

```

----- Derivation ----->

```

      ONE OF ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[DistanceBetweenLocations] /\ -(di
      THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
      SELECTFROM 'a'[DistanceBetweenLocations]*'b'[Amount]

```

```

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distpenalty;I[Amount]
        PICK a,b FROM distpenalty~;(I[DistanceBetweenLocations] /\ -(distpenalt
        THEN INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
            SELECTFROM 'b' [DistanceBetweenLocations]*'a' [Amount]

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distpenalty;I[Amount]
        (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpenalty
        NEW x:Amount;
        INSERT INTO distpenalty[DistanceBetweenLocations*Amount]
            SELECTFROM (I[DistanceBetweenLocations] /\ -(distpenalty;distpenalty~))*'x'

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpena
        (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;I[Amount];distpenalty
        ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[DistanceBetweenLocations] /\ -(di
            THEN INSERT INTO distbranch[DistanceBetweenLocations*Branch]
                SELECTFROM 'a' [DistanceBetweenLocations]*'b' [Branch]

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distbranch;distbranch
        PICK a,b FROM distbranch~;(I[DistanceBetweenLocations] /\ -(distbranch;
        THEN INSERT INTO distbranch[DistanceBetweenLocations*Branch]
            SELECTFROM 'b' [DistanceBetweenLocations]*'a' [Branch]

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distbranch;distbranch
        (MAINTAINING -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM TOT d
        NEW x:Branch;
        INSERT INTO distbranch[DistanceBetweenLocations*Branch]
            SELECTFROM (I[DistanceBetweenLocations] /\ -(distbranch;distbranch~))*'x' [B

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM TO
        (MAINTAINING -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM TOT d
        ONE NONEMPTY ALTERNATIVE OF PICK a,b FROM (I[DistanceBetweenLocations] /\ -(di
            THEN INSERT INTO distance[DistanceBetweenLocations*Distance]
                SELECTFROM 'a' [DistanceBetweenLocations]*'b' [Distance]

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distance;I[Distance]
        PICK a,b FROM distance~;(I[DistanceBetweenLocations] /\ -(distance;dist
        THEN INSERT INTO distance[DistanceBetweenLocations*Distance]
            SELECTFROM 'b' [DistanceBetweenLocations]*'a' [Distance]

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distance;I[Distance]
        (MAINTAINING -I[DistanceBetweenLocations] \/ distance;I[Distance];distance~ FR
        NEW x:Distance;
        INSERT INTO distance[DistanceBetweenLocations*Distance]
            SELECTFROM (I[DistanceBetweenLocations] /\ -(distance;distance~))*'x' [Dista

        (TO MAINTAIN  -I[DistanceBetweenLocations] \/ distance;I[Distance];distance~
        (MAINTAINING -I[DistanceBetweenLocations] \/ distance;I[Distance];distance~ FR
        (MAINTAINING -(distpenalty~;distpenalty) \/ I[Amount] FROM UNI distpenalty::DistanceB
        (MAINTAINING -I[DistanceBetweenLocations] \/ distpenalty;distpenalty~ FROM TOT distpe
        (MAINTAINING -I[DistanceBetweenLocations] \/ distbranch;distbranch~ FROM TOT distbran

```

```
(MAINTAINING -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetweenL
(MAINTAINING -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distance::Di
```

<-----End Derivation --

```
ON DELETE Delta FROM Isn{dety=DistanceBetweenLocations} EXECUTE      -- (ECA rule
ALL of DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
      SELECTFROM Delta;V[DistanceBetweenLocations*Amount]

DELETE FROM distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM Delta;V[DistanceBetweenLocations*Branch]

DELETE FROM distance[DistanceBetweenLocations*Distance]
      SELECTFROM Delta;V[DistanceBetweenLocations*Distance]
```

----- Derivation ----->

```
ALL of DELETE FROM distpenalty[DistanceBetweenLocations*Amount]
      SELECTFROM Delta;V[DistanceBetweenLocations*Amount]

DELETE FROM distbranch[DistanceBetweenLocations*Branch]
      SELECTFROM Delta;V[DistanceBetweenLocations*Branch]

DELETE FROM distance[DistanceBetweenLocations*Distance]
      SELECTFROM Delta;V[DistanceBetweenLocations*Distance]
```

<-----End Derivation --

```
ON DELETE Delta FROM Isn{dety=Location} EXECUTE      -- (ECA rule 140)
ONE OF DELETE FROM branchLocation[Branch*Location]
      SELECTFROM branchLocation;(-I[Location] /\ branchLocation~;branchLocation

      (TO MAINTAIN -(branchLocation~;branchLocation) \/ I[Location] FROM UNI b
DELETE FROM branchLocation[Branch*Location]
      SELECTFROM V[Branch*Location];Delta

(MAINTAINING -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLoc
(MAINTAINING -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocation
```

----- Derivation ----->

```
ONE OF DELETE FROM branchLocation[Branch*Location]
```



```

SELECTFROM branchLocation;(-I[Location] /\ branchLocation~;branchLocation)

(TO MAINTAIN -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLocation)
DELETE FROM branchLocation[Branch*Location]
SELECTFROM V[Branch*Location];Delta

(MAINTAINING -(branchLocation~;branchLocation) \/ I[Location] FROM UNI branchLocation)
(MAINTAINING -I[Branch] \/ branchLocation;branchLocation~ FROM TOT branchLocation::BranchLocation)

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=Brand} EXECUTE      -- (ECA rule 142)
ONE OF DELETE FROM brand[CarType*Brand]
      SELECTFROM brand;(-I[Brand] /\ brand~;brand)

      (TO MAINTAIN -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
      DELETE FROM brand[CarType*Brand]
      SELECTFROM V[CarType*Brand];Delta

(MAINTAINING -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(MAINTAINING -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)

```

----- Derivation ----->

```

ONE OF DELETE FROM brand[CarType*Brand]
      SELECTFROM brand;(-I[Brand] /\ brand~;brand)

      (TO MAINTAIN -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
      DELETE FROM brand[CarType*Brand]
      SELECTFROM V[CarType*Brand];Delta

(MAINTAINING -(brand~;brand) \/ I[Brand] FROM UNI brand::CarType*Brand)
(MAINTAINING -I[CarType] \/ brand;brand~ FROM TOT brand::CarType*Brand)

```

<-----End Derivation --

```

ON DELETE Delta FROM Isn{dety=Model} EXECUTE      -- (ECA rule 144)
ONE OF DELETE FROM model[CarType*Model]
      SELECTFROM model;(-I[Model] /\ model~;model)

      (TO MAINTAIN -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
      DELETE FROM model[CarType*Model]
      SELECTFROM V[CarType*Model];Delta

(MAINTAINING -(model~;model) \/ I[Model] FROM UNI model::CarType*Model)
(MAINTAINING -I[CarType] \/ model;model~ FROM TOT model::CarType*Model)

```

----- Derivation ----->

```
ONE OF DELETE FROM model[CarType*Model]
      SELECTFROM model;(-I[Model] /\ model~;model)

      (TO MAINTAIN  -(model~;model) /\ I[Model] FROM UNI model::CarType*Model)
DELETE FROM model[CarType*Model]
      SELECTFROM V[CarType*Model];Delta

(MAINTAINING -(model~;model) /\ I[Model] FROM UNI model::CarType*Model)
(MAINTAINING -I[CarType] /\ model;model~ FROM TOT model::CarType*Model)
```

<-----End Derivation --

```
ON DELETE Delta FROM Isn{dety=MaxRentalDuration} EXECUTE  -- (ECA rule 146)
ALL of DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM rcMaxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration~)

      (TO MAINTAIN  -(rcMaxRentalDuration~;rcMaxRentalDuration) /\ I[MaxRentalDuration])
DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
      SELECTFROM V[CarRentalCompany*MaxRentalDuration];Delta

ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
      SELECTFROM rcPickupBranch;branchOf;maxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration~)

      (TO MAINTAIN  -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration) /\ I[MaxRentalDuration])
DELETE FROM rcPickupBranch[RentalContract*Branch]
      SELECTFROM rcMaxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration~)

      (TO MAINTAIN  -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration) /\ I[MaxRentalDuration])
DELETE FROM branchOf[Branch*CarRentalCompany]
      SELECTFROM rcPickupBranch~;rcMaxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration~)

      (TO MAINTAIN  -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration) /\ I[MaxRentalDuration])
DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
      SELECTFROM branchOf~;rcPickupBranch~;rcMaxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration~)

      (TO MAINTAIN  -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration) /\ I[MaxRentalDuration])
      (MAINTAINING -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration) /\ I[MaxRentalDuration])
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) /\ rcMaxRentalDuration)
(MAINTAINING -(rcMaxRentalDuration~;rcMaxRentalDuration) /\ I[MaxRentalDuration])
```

----- Derivation ----->

```
ALL of DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
```

```

SELECTFROM rcMaxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration~

(TO MAINTAIN -(rcMaxRentalDuration~;rcMaxRentalDuration) \/ I[MaxRentalDuration]
DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
SELECTFROM V[CarRentalCompany*MaxRentalDuration];Delta

ONE OF DELETE FROM rcMaxRentalDuration[RentalContract*MaxRentalDuration]
SELECTFROM rcPickupBranch;branchOf;maxRentalDuration;(-I[MaxRentalDuration]

(TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration]
DELETE FROM rcPickupBranch[RentalContract*Branch]
SELECTFROM rcMaxRentalDuration;(-I[MaxRentalDuration] /\ rcMaxRentalDuration]

(TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration]
DELETE FROM branchOf[Branch*CarRentalCompany]
SELECTFROM rcPickupBranch~;rcMaxRentalDuration;(-I[MaxRentalDuration]

(TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration]
DELETE FROM maxRentalDuration[CarRentalCompany*MaxRentalDuration]
SELECTFROM branchOf~;rcPickupBranch~;rcMaxRentalDuration;(-I[MaxRentalDuration]

(TO MAINTAIN -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration]
(MAINTAINING -(rcMaxRentalDuration~;rcPickupBranch;branchOf;maxRentalDuration]
(MAINTAINING -(rcPickupBranch;branchOf;maxRentalDuration) \/ rcMaxRentalDuration FROM
(MAINTAINING -(rcMaxRentalDuration~;rcMaxRentalDuration) \/ I[MaxRentalDuration] FROM

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=Distance} EXECUTE -- (ECA rule 148)
ONE OF DELETE FROM distance[DistanceBetweenLocations*Distance]
SELECTFROM distance;(-I[Distance] /\ distance~;distance)

(TO MAINTAIN -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetweenLocations]
DELETE FROM distance[DistanceBetweenLocations*Distance]
SELECTFROM V[DistanceBetweenLocations*Distance];Delta

(MAINTAINING -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetweenLocations]
(MAINTAINING -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distanceBetweenLocations]

----- Derivation ----->

```

```

ONE OF DELETE FROM distance[DistanceBetweenLocations*Distance]
SELECTFROM distance;(-I[Distance] /\ distance~;distance)

(TO MAINTAIN -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetweenLocations]
DELETE FROM distance[DistanceBetweenLocations*Distance]
SELECTFROM V[DistanceBetweenLocations*Distance];Delta

```

```

(MAINAINING -(distance~;distance) \/ I[Distance] FROM UNI distance::DistanceBetweenL
(MAINAINING -I[DistanceBetweenLocations] \/ distance;distance~ FROM TOT distance::Di

<-----End Derivation --

```

```

ON DELETE Delta FROM Isn{dety=SESSION} EXECUTE      -- (ECA rule 150)
ALL of DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM (-I[SESSION] /\ sessionRC;sessionRC~);sessionRC \/ Delta;V[SE

      (TO MAINTAIN -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::S
DELETE FROM sessionBranch[SESSION*Branch]
      SELECTFROM Delta;V[SESSION*Branch]

DELETE FROM sessionToday[SESSION*Date]
      SELECTFROM Delta;V[SESSION*Date]

(MAINAINING -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::SESSION*R

```

----- Derivation ----->

```

ALL of DELETE FROM sessionRC[SESSION*RentalContract]
      SELECTFROM (-I[SESSION] /\ sessionRC;sessionRC~);sessionRC \/ Delta;V[SESSION

      (TO MAINTAIN -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::SESSIO
DELETE FROM sessionBranch[SESSION*Branch]
      SELECTFROM Delta;V[SESSION*Branch]

DELETE FROM sessionToday[SESSION*Date]
      SELECTFROM Delta;V[SESSION*Date]

(MAINAINING -(sessionRC;sessionRC~) \/ I[SESSION] FROM INJ sessionRC::SESSION*Rental

<-----End Derivation --

```