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Assignment 1 (10 points)

Explain the distinction axiom. Take the reservation of a room from the Sleepwell case (assignment 6) as the example for illustrating your answer.

Assignment 2 (10 points)

Draw the cancellation pattern of a promise. Illustrate it with the cancellation of a room reservation by the hotel in the Sleepwell case (assignment 6).



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Assignment 3 (10 points)

Characterize the next changes in hotel Sleepwell (see assignment 6) as primarily ontological, infological or datalogical:

The possibility to make room reservations via the web site of Sleepwell.

The possibility to rent a car from the hotel.

The possibility to check out on the TV at the room.

The possibility to choose a room yourself at check-in time.

Applying room rate reductions, e.g., depending on the number of hotel stays of a customer in the past 24 months.

Assignment 4 (10 points)

What is the claim to truth in Habermas' theory of communicative action? Illustrate it, taking the refusal by the hotel reception to make a room reservation as the example.



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Assignment 5 (10 points)

In the book Enterprise Ontology you can read that the transition space of the production world is fully determined by the the transition space of the coordination world. Clarify this statement.



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Assignment 6 (50 points)

The main function of hotel Sleepwell is to rent rooms to customers. Usually, customers make a reservation in advance, either by phone or by fax, specifying the name of the (chief) guest and possibly additional guests, the date of arrival, the date of departure, and the type of the room.

The main condition for responding positively to a request for reservation is the availability of a room of the specified type during the specified period. To this end the front desk maintains a so-called Room Occupation Table (ROT). It shows the number of available rooms for every room type on every date. New reservations are marked immediately on the ROT, as are cancellations of reservations made by the customers or by the hotel. Instead of reserving in advance, one can also just walk in and ask for a room, of course at the risk of no room being available.

The customer and the guest need not be the same person. Regarding business reservations, it is very common that another representative of a company makes the reservation instead of the (chief) guest that is going to stay in the hotel.

On the date of arrival the guest(s) check(s) in at the front desk. At that time a particular room of the requested room type is allocated (Note: you do not have to model the allocation of rooms). If a guest does not show up before 8 pm and did not notify the hotel of his or her late arrival, the reservation will be cancelled by the hotel reception.

On the date of departure the guest(s) check(s) out at the front desk and pay(s) the invoice that is prepared and printed at that moment. It contains all costs that are caused by the guest(s), so the rent of the room per day as well as all other services (restaurant, bar, sauna, etc.) that have been used.

Sub assignments

1. Produce the Actor Transaction Diagram and the Transaction Result Table of the case Sleepwell, based on the information that is provided above. **(20 points)**
2. Produce the State Model of the case Sleepwell, based on the information that is provided above. **(20 points)**
3. Produce the Organization Construction Diagram of the case Sleepwell, based on the results sofar and the information that is provided above. **(10 points)**



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Assignment 1 (10 points)

Explain the distinction axiom. Take the reservation of a room from the Sleepwell case (assignment 6) as the example for illustrating your answer.

< the distinction axiom can be found in the book Enterprise Ontology, Chap. 12 >

In making a room reservation the customer performs a request (of T01). This regards the performativity of the customer.

In doing so, the customer provides information about the type of room he/she wants, the guest(s) etc. This regards the informativity of the customer.

In order to provide this information, the customer makes a telephone call with the hotel reception. This regards the formativity of the customer.

Assignment 2 (10 points)

Draw the cancellation pattern of a promise. Illustrate it with the cancellation of a room reservation by the hotel in the Sleepwell case (assignment 6).

< the cancellation pattern can be found in the book Enterprise Ontology, Chap. 10 >

The cancellation of a reservation by the hotel means cancelling the promise in the corresponding instance of T01 in case of a no-show (no timely check-in). The response by the customer (CA01) can only be to allow this, since the cancellation is in accordance with the current business rules that the hotel applies.



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Assignment 3 (10 points)

Characterize the next changes in hotel Sleepwell (see assignment 6) as primarily ontological, infological or datalogical:

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The possibility to check out on the TV at the room.

The possibility to choose a room yourself at check-in time.

Applying room rate reductions, e.g., depending on the number of hotel stays of a customer in the past 24 months.

In the order listed, the changes must be characterized as follows:

Datalogical; this change only regards another way of communicating.

Ontological; a new service (transaction) is being offered.

Datalogical; this change only regards another way of communicating.

Ontological; one may conceive this either as a new service (transaction) being offered to the customer or as the delegation of authority in the room allocation transaction (which was not needed to model).

Infological; this is a matter of calculation.

Assignment 4 (10 points)

What is the claim to truth in Habermas' theory of communicative action? Illustrate it, taking the refusal by the hotel reception to make a room reservation as the example.

< Habermas' theory can be found in the book Enterprise Ontology, Chap. 12 >

Refusing by the hotel reception to make a reservation on the basis of the claim to truth means declining a T01 because there is no room of the requested type available in the requested period.



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Assignment 5 (10 points)

In the book Enterprise Ontology you can read that the transition space of the production world is fully determined by the the transition space of the coordination world. Clarify this statement.

< this can be found in the book Enterprise Ontology, Chap. 15 >

The most important thing to mention is that a P-fact (transaction result) comes into existing at the moment of accepting it (which is a C-act). That is the reason why the transition space of the P-world is fully determined bij the the transition space of the C-world.



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Sub assignments

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Analysis

Apparently, the relevant unit of service of the hotel in this case is the rental of a room for a number of days. Let us call this a room rental. The notion of room rental is a location-time notion, like e.g., lending a book from a library or a car from a car rental company or a seat in a theatre. Basically, it represents the right to use a location-bound service for some time, in exchange of a payment. Such a service has to be started and to be ended explicitly. So, we identify two transaction kinds, which we will call T01 "room rental start" and T02 "room rental end", with respective transaction results R01 "room rental R has been started" and R02 "room rental R has been ended".

The executor of T01 is A01 (let us call it "room rental starter") and the executor of T02 is A02 (let us call it "room rental ender"). In the period between the creation time of R01 and the creation time of R02 the room rental is alive. During that period the customer has the right to let the guest(s) occupy the room.

Making a reservation seems to be a separate transaction but it is not; the term is just misleading. Reserving means only that the requested creation time of the transaction result (R01) is some date in the future (the earliest one being today). Therefore, the procedure to serve a walk-in customer is the same as for a T01 with a future creation time. We introduce the (external) composite actor role CA01 (customer) as the initiator of T01 and T02.

The ROT is a collection of derived data, of which the source is the set of room rentals that have not yet been ended. From these one can derive the number of rooms per room type that is available on a particular date. Obviously there is no essential transaction that updates the ROT, nor is the ROT an external fact bank.

A precondition for starting a room rental is the being checked in of the guest(s). This is quite common in the hotel business (Note. In principle one could rent a hotel room and pay for it without occupying the room but that is not common practice). Checking in is an original P-fact, to be established by the guest(s). So there is a transaction T04 "guest check-in", of which the executor is the guest(s). It is quite obvious that the initiator is A01. The requested creation time of R04 "the guest of room rental R has checked-in" is before 8 pm on the starting date.

T04 is requested after T01 has been promised (which means that there is a room of the requested type during the requested period). At the same time A01 initiates a transaction T05 "guest check-out" with result R05 "the guest of room rental R has checked-out". The requested creation time of this R05 is some point in time on the date of departure before check-out time (this was not specified in the case description). The executor of T05 is the guest(s).

Cancelling a reservation (either by the customer or by the hotel) means cancelling the promise in the corresponding T01. Accordingly, the ROT is 'updated' immediately.

The fifth transaction we identify is the payment for a room rental (T03). The initiator obviously is A02 and as the executor we take CA01 (the customer). Note that his authority may be delegated to one of the guests. Apparently, there is an external bank in which all costs of a room rental can be found, as well as a bank for guest data and one for hotel data.



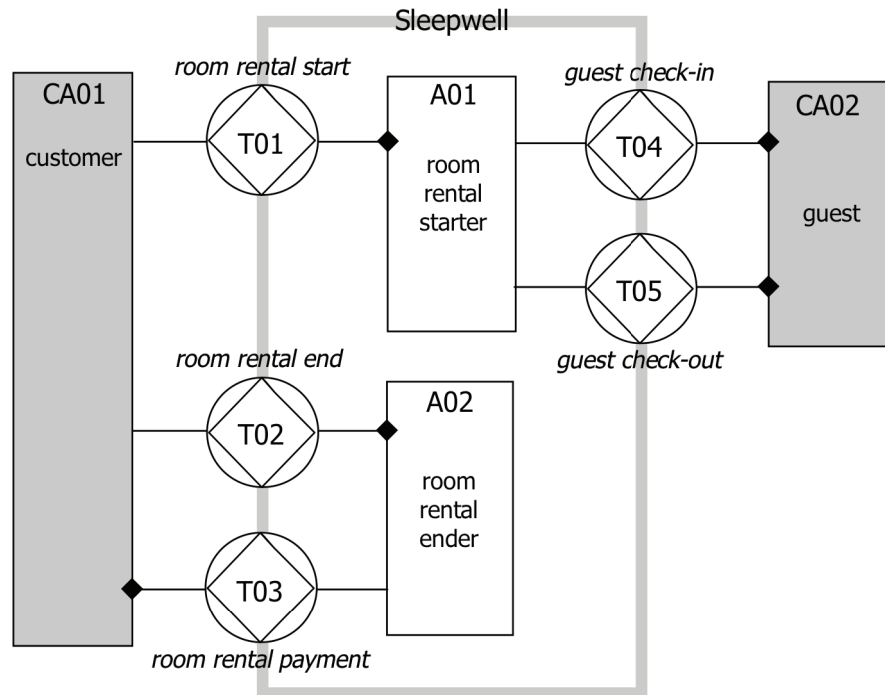
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The Actor Transaction Diagram



The Transaction Result Table

| Transaction type | Transaction result |
|-------------------------|---|
| T01 room rental start | R01 <i>room rental R has been started</i> |
| T02 room rental end | R02 <i>room rental R has been ended</i> |
| T03 room rental payment | R03 <i>room rental R has been paid</i> |
| T04 guest check-in | R04 <i>the guest of room rental R has checked-in</i> |
| T05 guest check-out | R05 <i>the guest of room rental R has checked-out</i> |



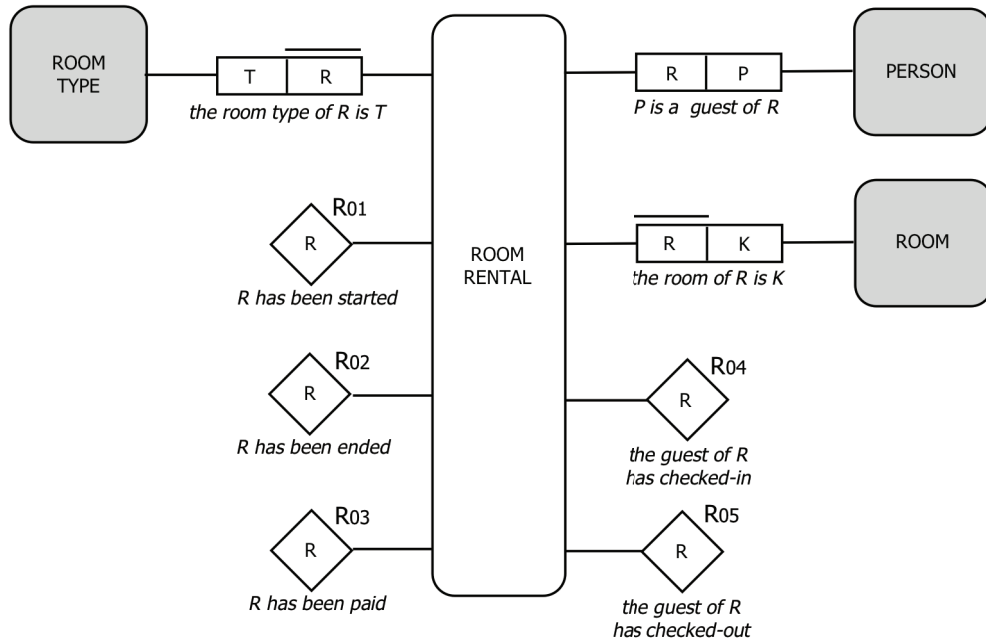
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The Object Fact Diagram



The Object Property List

| Property | Domain | Range | Scale type |
|-----------------------|-------------|-------|------------|
| arrival date | ROOM RENTAL | DATE | I |
| departure date | ROOM RENTAL | DATE | I |
| hotel stay charge (*) | ROOM RENTAL | EURO | R |

