CS405: Some LSD towards accounting for a bus journey to Coventry (SBR 7th March 2008)
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agent passenger_waiting

state  lengthOfWait, impatienceLevel, threshold, needForBus, {suppose each
state observable is  measured on scale 1..5, with
some, such as impatienceLevel, allowed also to be zero or negative}

oracle bus_sighting, bus_Coventry, bus_other, bus_Coventry_arrives

handle suitable_change

derivate        impatienceLevel is lengthOfWait - threshold
                threshold is needForBus - lengthOfWait

protocol        !suitable_change -> obtain suitable_change
                bus_sighting -> impatienceLevel decreases
                bus_Coventry -> impatienceLevel decreases
                bus_other -> impatienceLevel increases
                bus_Coventry_arrives and !full  -> board bus
{passenger_waiting
                becomes passenger_on_bus}
                bus_Coventry_arrives and full -> impatienceLevel increases
                impatienceLevel > threshold -> alternative_action


agent passenger_on_bus

state have-ticket, upstairs, sitting, ready_to_alight

oracle destination_scene, vacant_seat, stopping_light

handle stop_button, paid

derivate ready_to_alight is destination_scene

protocol destination_scene and !stopping_light -> stop_button_pressed

        !have_ticket and !paid  -> paid and have_ticket
        vacant_seat -> sitting
        !upstairs and doubledecker  -> upstairs
        ready_to_alight -> end of passenger_on_bus


agent bus

state doubledecker, route, destination, stopping_light, full,
stop_button_pressed, position

oracle
        agent driver

        state driving, attending, giving_ticket

        oracle traffic_conditions, stopping_light

        handle giving_ticket, stopping

        protocol        stopping_light -> stopping
                        stopping -> driving
                        driving -> stopping

derivate  stopping_light is stop_button_pressed
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