# Negation Domain Analysis Model

Package in package ''

Negation Domain Analysis Model

Version Phase 1.0 Proposed

Jay created on 3/6/2017. Last modified 3/6/2017

## Use Case Model

Package in package 'Negation Domain Analysis Model'

Use Case Model

Version Phase 1.0 Proposed

 created on 11/30/2016. Last modified 11/30/2016

### Use Cases diagram

Use Case diagram in package 'Use Case Model'

Use Cases

Version 1.0

Jay created on 11/30/2016. Last modified 2/22/2017



Use Cases

### Record System Boundary

Boundary in package 'Use Case Model'

Record System Boundary

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/23/2017

Extends

### Automated Agent

Actor in package 'Actors'

A system that uses record data in an automated fashion.

Automated Agent

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Quality system to Automated Agent[ Direction is 'Source -> Destination'. ] |
|  Generalization from Clinical decision support system to Automated Agent[ Direction is 'Source -> Destination'. ] |

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find absent phenomena : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find procedures not done : UseCase, Public  |

### Clinical decision support system

Actor in package 'Actors'

A system designed to recommend clinical advice based on a patient's record data.

Clinical decision support system

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Clinical decision support system to Automated Agent[ Direction is 'Source -> Destination'. ] |

### Initial care provider

Actor in package 'Actors'

A care provider who records information that will be used later.

Initial care provider

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent phenomenon : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent intent : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record negative answer to question : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Direct that procedure not be done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record procedure not done : UseCase, Public  |

### Quality system

Actor in package 'Actors'

A system designed to calculate quality measures based on existing medical record data.

Quality system

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Quality system to Automated Agent[ Direction is 'Source -> Destination'. ] |

### Subsequent care provider

Actor in package 'Actors'

A provider who uses information recorded previously.

Note that a subsequent provider may simply be the initial provider at a later point in time.

Subsequent care provider

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View procedure not done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: Confirm checklist : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View absent phenomenon : UseCase, Public  |

| ASSOCIATIONS |
| --- |
|  Association (direction: Unspecified)  |
| Source: Public (Actor) Subsequent care provider  | Target: Public (UseCase) Order Procedure  |

### Confirm checklist

UseCase in package 'Use Cases'

Certain actions require confirmation of appropriateness. Some questions may confirm whether or not there are contraindications to a procedure (pregnancy, latex allergy), and some may confirm the patient's state of mind (goals, permissions). When these questions are answered in the negative, the 'gated' action will typically not proceed.

Confirm checklist

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: Confirm checklist : UseCase, Public To: Record negative answer to question : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: Confirm checklist : UseCase, Public  |

### Direct that procedure not be done

UseCase in package 'Use Cases'

Instruction that a procedure not be performed on a specific patient, usually with a reason for the prohibition.

Direct that procedure not be done

Version 1.0 Phase 1.0 Proposed

Jay created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Include «include» Source -> DestinationFrom: Direct that procedure not be done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  Dependency «invokes» Source -> DestinationFrom: Order Procedure : UseCase, Public To: Direct that procedure not be done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Direct that procedure not be done : UseCase, Public  |

### Find absent phenomena

UseCase in package 'Use Cases'

Discover phenomena documented as absent in the patient. This case supports both human review and automated processes (CDS and quality measure calculation).

Find absent phenomena

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find absent phenomena : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Find absent phenomena : UseCase, Public  |

### Find procedures not done

UseCase in package 'Use Cases'

Discover procedures documented as not performed on the patient. This case supports both human review and automated processes (CDS and quality measure calculation).

Find procedures not done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find procedures not done : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Find procedures not done : UseCase, Public  |

### Order Procedure

UseCase in package 'Use Cases'

Indicate that a procedure should be performed. This is included here in order to demonstrate linkage to the prior assertion that the procedure not be performed.

Order Procedure

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: Order Procedure : UseCase, Public To: Direct that procedure not be done : UseCase, Public  |

| ASSOCIATIONS |
| --- |
|  Association (direction: Unspecified)  |
| Source: Public (Actor) Subsequent care provider  | Target: Public (UseCase) Order Procedure  |

### Record absent intent

UseCase in package 'Use Cases'

Intents include goals and permissions. A patient may not share a clinician's concern or statement of goal such as quitting smoking; and the patient may decline to give permission to perform procedures.

Record absent intent

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/22/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Record absent intent to Record negative answer to question[ Direction is 'Source -> Destination'. ] |

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent intent : UseCase, Public  |

### Record absent phenomenon

UseCase in package 'Use Cases'

Record that a phenomenon is not observed in a patient. This typically implies that the method used to determine the presence of the phenomenon is normally sufficient to do so.

Record absent phenomenon

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent phenomenon : UseCase, Public  |
|  Dependency «invokes» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Record absent phenomenon : UseCase, Public  |

### Record negative answer to question

UseCase in package 'Use Cases'

A negative value is recorded in response to a specific evaluative question.

Two common cases include negative results (e.g., negative strep test) and questions confirming absence of contraindications to a procedure (e.g., patient not pregnant).

Record negative answer to question

Version 1.0 Phase 1.0 Proposed

Jay created on 11/30/2016. Last modified 2/22/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Record absent intent to Record negative answer to question[ Direction is 'Source -> Destination'. ] |

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: Confirm checklist : UseCase, Public To: Record negative answer to question : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record negative answer to question : UseCase, Public  |

### Record procedure not done

UseCase in package 'Use Cases'

Document that a specific procedure was not performed on the patient, usually to ensure that other providers understand that the gap is intentional. Such a record implies a scope of time, typically the encounter.

Record procedure not done

Version 1.0 Phase 1.0 Proposed

Jay created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Include «include» Source -> DestinationFrom: Direct that procedure not be done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  Dependency «invokes» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record procedure not done : UseCase, Public  |

### View absent phenomenon

UseCase in package 'Use Cases'

View problems or other conditions found to be absent in the patient. This is commonly used in 'chart by exception' cases.

View absent phenomenon

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Record absent phenomenon : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Find absent phenomena : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View absent phenomenon : UseCase, Public  |

### View procedure not done

UseCase in package 'Use Cases'

Discover details about a procedure documented as not done, typically with a reason.

View procedure not done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Find procedures not done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View procedure not done : UseCase, Public  |

### Actors

Package in package 'Use Case Model'

Actors

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 11/30/2016

#### Automated Agent

Actor in package 'Actors'

A system that uses record data in an automated fashion.

Automated Agent

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Quality system to Automated Agent[ Direction is 'Source -> Destination'. ] |
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| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find absent phenomena : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find procedures not done : UseCase, Public  |

#### Clinical decision support system

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A system designed to recommend clinical advice based on a patient's record data.

Clinical decision support system

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Clinical decision support system to Automated Agent[ Direction is 'Source -> Destination'. ] |

#### Initial care provider

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A care provider who records information that will be used later.

Initial care provider

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
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|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent phenomenon : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent intent : UseCase, Public  |
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|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Direct that procedure not be done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record procedure not done : UseCase, Public  |

#### Quality system

Actor in package 'Actors'

A system designed to calculate quality measures based on existing medical record data.

Quality system

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Quality system to Automated Agent[ Direction is 'Source -> Destination'. ] |

#### Subsequent care provider

Actor in package 'Actors'

A provider who uses information recorded previously.

Note that a subsequent provider may simply be the initial provider at a later point in time.

Subsequent care provider

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View procedure not done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: Confirm checklist : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View absent phenomenon : UseCase, Public  |

| ASSOCIATIONS |
| --- |
|  Association (direction: Unspecified)  |
| Source: Public (Actor) Subsequent care provider  | Target: Public (UseCase) Order Procedure  |

### Processes

Package in package 'Use Case Model'

Processes

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/16/2017

#### Apply Checklist diagram

Activity diagram in package 'Processes'

Apply Checklist

Version 1.0

Jay created on 2/16/2017. Last modified 2/23/2017



Apply Checklist

#### Apply Measure diagram

Activity diagram in package 'Processes'

Apply Measure

Version 1.0

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Apply Measure

#### Apply Rule diagram

Activity diagram in package 'Processes'

Apply Rule

Version 1.0

Jay created on 2/23/2017. Last modified 2/23/2017



Apply Rule

#### Find Absent Phenomenon diagram

Activity diagram in package 'Processes'

Find Absent Phenomenon

Version 1.0

Jay created on 2/16/2017. Last modified 2/23/2017



Find Absent Phenomenon

#### Order Check diagram

Activity diagram in package 'Processes'

Order Check

Version 1.0

Jay created on 2/23/2017. Last modified 2/23/2017



Order Check

#### Apply Rule

Activity in package 'Processes'

Rules take input data and determine an output. These are typically clinical recommendations for treatment, given a set of patient characteristics.

Apply Rule

Version 1.0 Phase 1.0 Proposed

Jay created on 2/23/2017. Last modified 2/23/2017

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Phenomena to Apply Rule |
|  ControlFlow from Find Specified Procedures to Apply Rule |
|  ControlFlow from Find Procedures Not Done to Apply Rule |
|  ControlFlow from Find Absent Phenomena to Apply Rule |

#### Begin Order

Activity in package 'Processes'

A provider begins to enter an order. The procedure may or may not be countermanded.

Begin Order

Version 1.0 Phase 1.0 Proposed

Jay created on 2/23/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Begin Order to Find Procedures Not Done |

#### Calculate Quality Measure

Activity in package 'Processes'

Use defined rules to calculate a ratio of cases meeting a positive or negative criterion to cases in a defined population.

Calculate Quality Measure

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Quality Measure Procedures Not Done to Calculate Quality Measure |
|  ControlFlow from Infer Procedures Not Done to Calculate Quality Measure |

#### Confirm checklist

Activity in package 'Processes'

The checklist "gates" the proposed action. Certain answers may prevent the execution of the action.

Confirm checklist

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Confirm checklist to Confirmed? |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Record absent intent to Confirm checklist |
|  ControlFlow from Record negative answer to question to Confirm checklist |

#### Direct Procedure Not Be Done

Activity in package 'Processes'

A provider indicates that a procedure should not be performed on a patient, and may provide a reason for this statement--as well, incidentally, as a reason why it should. This direction may have specific temporal or organizational scope.

Direct Procedure Not Be Done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/23/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Direct Procedure Not Be Done to View Countermanded Procedure |

#### Find Absent Phenomena

Activity in package 'Processes'

Certain rules and measures need to know whether a specific phenomenon has been asserted to be absent. A head injury will be treated differently if it is without loss of consciousness, but this absence cannot be inferred: it must be stated in the record to qualify for use in the rule.

Find Absent Phenomena

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/23/2017

| STRUCTURAL PART OF Find Absent Phenomena |
| --- |
|  ObjectNode2 : ActionPin |

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Absent Phenomena to View absent phenomenon |
|  ControlFlow from Find Absent Phenomena to Apply Rule |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Record absent phenomenon to Find Absent Phenomena |

##### ObjectNode2

ActionPin owned by 'Find Absent Phenomena', in package 'Processes'

#### Find Phenomena

Activity in package 'Processes'

A rule will typically determine whether a patient fits into a cohort of interest by asking whether they have certain conditions or characteristics.

Find Phenomena

Version 1.0 Phase 1.0 Proposed

Jay created on 2/23/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Phenomena to Apply Rule |

#### Find Procedures Not Done

Activity in package 'Processes'

Measures and some rules merely need to know whether a procedure has been performed.

Some rules, e.g., order checks, include a check for records indicating that a procedure should not be performed on this patient.

Find Procedures Not Done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/23/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Procedures Not Done to Countermanded? |
|  ControlFlow from Find Procedures Not Done to Apply Rule |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Begin Order to Find Procedures Not Done |

#### Find Quality Measure Procedures Not Done

Activity in package 'Processes'

Search for records asserting that a specific procedure was not done.

Some procedures are explicitly asserted as not done in the clinical domain. This is typically done in order to provide a rationale for not being done to support exceptions in quality measure calculation.

A procedure may also be recorded as not done for clinical reasons, typically because it is indicated by a protocol but contraindicated by some other factor, and the provider making this decision wants to ensure that other providers don't interpret the gap as an oversight.

Find Quality Measure Procedures Not Done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Quality Measure Procedures Not Done to Calculate Quality Measure |

#### Find Specified Procedures

Activity in package 'Processes'

Search the record for procedures relevant to the quality measure or rule. A measure will typically assess how often a recommended procedure is done for a specified class of patient. A rule may need to know whether an action has been taken, but may only suggest action.

Find Specified Procedures

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Specified Procedures to Infer Procedures Not Done |
|  ControlFlow from Find Specified Procedures to Apply Rule |

#### Infer Procedures Not Done

Activity in package 'Processes'

If a relevant procedure record is not found, a quality measure has no option other than to infer that the procedure was not done. The resulting assertion that something was not done cannot be used for clinical care; it may be persisted only for quality measure calculation and audit.

Infer Procedures Not Done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Infer Procedures Not Done to Calculate Quality Measure |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Specified Procedures to Infer Procedures Not Done |

#### Record absent intent

Activity in package 'Processes'

Intents are a special case of negative state questions, typically used for care planning as well as confirming specific interventions. Statements about goals, for instance, may persist beyond a specific encounter, while permissions are typically solicited for each encounter.

Record absent intent

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Record absent intent to Confirm checklist |

#### Record absent phenomenon

Activity in package 'Processes'

If phenomenon of interest is identical to that recorded, this is no different from finding present phenomena.

Otherwise, the logic of aggregation is modified from normal operation, whether by description logic or by query.

* If the phenomenon of interest is more general than that recorded, it cannot be ruled out: e.g., a record of 'no subdural hematoma' does not imply no cerebral hemorrhage.

If the phenomenon of interest is more specific than that recorded, it can be: e.g., a record of 'no cerebral hemorrhage' does imply 'no subdural hematoma.'

Record absent phenomenon

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/23/2017

| STRUCTURAL PART OF Record absent phenomenon |
| --- |
|  ObjectNode1 : ActionPin |
|  ObjectNode3 : ActionPin |

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Record absent phenomenon to Find Absent Phenomena |

##### ObjectNode1

ActionPin owned by 'Record absent phenomenon', in package 'Processes'

##### ObjectNode3

ActionPin owned by 'Record absent phenomenon', in package 'Processes'

#### Record negative answer to question

Activity in package 'Processes'

Absences that are otherwise of no interest may be of interest in certain cases. Pregnancy, NPO status, and other states may be relevant to planned interventions, and may be explicitly interrogated. Answers may not be recorded to support extended management (e.g., as, conditions), but will be kept at hand to support decisions around interventions and to audit these decisions.

Record negative answer to question

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/23/2017

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Record negative answer to question to Confirm checklist |

#### Take Checklist-Gated Action

Activity in package 'Processes'

Certain actions require confirmation of appropriateness. Some questions may confirm whether or not there are contraindications to a procedure (pregnancy, latex allergy), and some may confirm the patient's state of mind (goals, permissions). When these questions are answered in the negative, the 'gated' action will typically not proceed.

Take Checklist-Gated Action

Version 1.0 Phase 1.0 Proposed

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| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
| Name: Yes ControlFlow from Confirmed? to Take Checklist-Gated Action |

#### View Countermanded Procedure

Activity in package 'Processes'

The provider views the record countermanding the procedure. This is not necessarily a rule: the provider may determine that the procedure should be performed anyway; it only informs the provider of the prior decision.

View Countermanded Procedure

Version 1.0 Phase 1.0 Proposed

Jay created on 2/23/2017. Last modified 2/23/2017

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Direct Procedure Not Be Done to View Countermanded Procedure |
| Name: Yes ControlFlow from Countermanded? to View Countermanded Procedure |

#### View absent phenomenon

Activity in package 'Processes'

View absent phenomenon

Version 1.0 Phase 1.0 Proposed

Jay created on 2/16/2017. Last modified 2/16/2017

| STRUCTURAL PART OF View absent phenomenon |
| --- |
|  ObjectNode4 : ActionPin |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Absent Phenomena to View absent phenomenon |

##### ObjectNode4

ActionPin owned by 'View absent phenomenon', in package 'Processes'

#### Confirmed?

DecisionNode in package 'Processes'

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
| Name: Yes ControlFlow from Confirmed? to Take Checklist-Gated Action |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Confirm checklist to Confirmed? |

#### Countermanded?

DecisionNode in package 'Processes'

| OUTGOING BEHAVIORAL RELATIONSHIPS |
| --- |
| Name: Yes ControlFlow from Countermanded? to View Countermanded Procedure |

| INCOMING BEHAVIORAL RELATIONSHIPS |
| --- |
|  ControlFlow from Find Procedures Not Done to Countermanded? |

### Use Cases

Package in package 'Use Case Model'

Use Cases

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/8/2017

#### Confirm checklist

UseCase in package 'Use Cases'

Certain actions require confirmation of appropriateness. Some questions may confirm whether or not there are contraindications to a procedure (pregnancy, latex allergy), and some may confirm the patient's state of mind (goals, permissions). When these questions are answered in the negative, the 'gated' action will typically not proceed.

Confirm checklist

Version 1.0 Phase 1.0 Proposed

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| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: Confirm checklist : UseCase, Public To: Record negative answer to question : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: Confirm checklist : UseCase, Public  |

#### Direct that procedure not be done

UseCase in package 'Use Cases'

Instruction that a procedure not be performed on a specific patient, usually with a reason for the prohibition.

Direct that procedure not be done

Version 1.0 Phase 1.0 Proposed

Jay created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Include «include» Source -> DestinationFrom: Direct that procedure not be done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  Dependency «invokes» Source -> DestinationFrom: Order Procedure : UseCase, Public To: Direct that procedure not be done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Direct that procedure not be done : UseCase, Public  |

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UseCase in package 'Use Cases'

Discover phenomena documented as absent in the patient. This case supports both human review and automated processes (CDS and quality measure calculation).

Find absent phenomena

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find absent phenomena : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Find absent phenomena : UseCase, Public  |

#### Find procedures not done

UseCase in package 'Use Cases'

Discover procedures documented as not performed on the patient. This case supports both human review and automated processes (CDS and quality measure calculation).

Find procedures not done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Automated Agent : Actor, Public To: Find procedures not done : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Find procedures not done : UseCase, Public  |

#### Order Procedure

UseCase in package 'Use Cases'

Indicate that a procedure should be performed. This is included here in order to demonstrate linkage to the prior assertion that the procedure not be performed.

Order Procedure

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: Order Procedure : UseCase, Public To: Direct that procedure not be done : UseCase, Public  |

| ASSOCIATIONS |
| --- |
|  Association (direction: Unspecified)  |
| Source: Public (Actor) Subsequent care provider  | Target: Public (UseCase) Order Procedure  |

#### Record absent intent

UseCase in package 'Use Cases'

Intents include goals and permissions. A patient may not share a clinician's concern or statement of goal such as quitting smoking; and the patient may decline to give permission to perform procedures.

Record absent intent

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/22/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Record absent intent to Record negative answer to question[ Direction is 'Source -> Destination'. ] |

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent intent : UseCase, Public  |

#### Record absent phenomenon

UseCase in package 'Use Cases'

Record that a phenomenon is not observed in a patient. This typically implies that the method used to determine the presence of the phenomenon is normally sufficient to do so.

Record absent phenomenon

Version 1.0 Phase 1.0 Proposed

 created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record absent phenomenon : UseCase, Public  |
|  Dependency «invokes» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Record absent phenomenon : UseCase, Public  |

#### Record negative answer to question

UseCase in package 'Use Cases'

A negative value is recorded in response to a specific evaluative question.

Two common cases include negative results (e.g., negative strep test) and questions confirming absence of contraindications to a procedure (e.g., patient not pregnant).

Record negative answer to question

Version 1.0 Phase 1.0 Proposed

Jay created on 11/30/2016. Last modified 2/22/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Record absent intent to Record negative answer to question[ Direction is 'Source -> Destination'. ] |

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: Confirm checklist : UseCase, Public To: Record negative answer to question : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record negative answer to question : UseCase, Public  |

#### Record procedure not done

UseCase in package 'Use Cases'

Document that a specific procedure was not performed on the patient, usually to ensure that other providers understand that the gap is intentional. Such a record implies a scope of time, typically the encounter.

Record procedure not done

Version 1.0 Phase 1.0 Proposed

Jay created on 11/30/2016. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Include «include» Source -> DestinationFrom: Direct that procedure not be done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  Dependency «invokes» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Initial care provider : Actor, Public To: Record procedure not done : UseCase, Public  |

#### View absent phenomenon

UseCase in package 'Use Cases'

View problems or other conditions found to be absent in the patient. This is commonly used in 'chart by exception' cases.

View absent phenomenon

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Record absent phenomenon : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View absent phenomenon : UseCase, Public To: Find absent phenomena : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View absent phenomenon : UseCase, Public  |

#### View procedure not done

UseCase in package 'Use Cases'

Discover details about a procedure documented as not done, typically with a reason.

View procedure not done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/7/2017. Last modified 2/23/2017

| CONNECTORS |
| --- |
|  Dependency «invokes» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Record procedure not done : UseCase, Public  |
|  Include «include» Source -> DestinationFrom: View procedure not done : UseCase, Public To: Find procedures not done : UseCase, Public  |
|  UseCaseLink Source -> DestinationFrom: Subsequent care provider : Actor, Public To: View procedure not done : UseCase, Public  |

## Negation Domain

Package in package 'Negation Domain Analysis Model'

Negation Domain

Version Phase 1.0 Proposed

 created on 2/8/2017. Last modified 2/24/2017

### Negation Domain Diagram diagram

Class diagram in package 'Negation Domain'

Negation Domain Diagram

Version 1.0

Jay created on 2/8/2017. Last modified 2/28/2017



Negation Domain Diagram

### Out of scope items

Package in package 'Negation Domain'

Out of scope items

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

#### Out of scope items diagram

Class diagram in package 'Out of scope items'

Out of scope items

Version 1.0

Jay created on 2/24/2017. Last modified 2/24/2017



Out of scope items

#### Indicative statement

Class in package 'Negation Domain'

A statement of fact, as opposed to an instruction (imperative), possibility (subjunctive), or question (interrogative).

Indicative statement

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Temporally remote fact to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Presence of phenomenon to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Expectation to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Evaluation of characteristic to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Aggregation from Likelihood to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Record of action to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Absence of phenomenon to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Aggregation from Provenance to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Fact Regarding Other Person to Indicative statement[ Direction is 'Source -> Destination'. ] |

#### Modifiers other than negation

Boundary in package 'Out of scope items'

Modifiers other than negation

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends

#### <anonymous>

Note in package 'Out of scope items'

Provenance and quality issues frequently complicate discussions of negation. Whether a statement can conclusively establish presence or absence is of vital importance. However, the quality of data is a concern that is common to all elements; it's not specific to negation. This is an important issue that is out of scope for this effort.

<anonymous>

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends

#### <anonymous>

Note in package 'Out of scope items'

Likelihood (the probability that something is true ) intersects with negation at the low end: an asserted likelihood of zero is equivalent to a negation. However, other values of likelihood do not partake of the logical complications of negation, and they can be treated as any other kind of fact.

Note that Likelihood can be conceptually distinguished from certainty, which has more to do with the quality of information supporting estimates of likelihood. One might, for instance, have a high degree of certainty that something is very unlikely.

<anonymous>

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends

#### <anonymous>

Note in package 'Out of scope items'

These elements the "Modifying" concern with Negation --  that they change rather than refine their subject concepts. I.e., a patient with well-controlled diabetes (qualified, or refined) still has diabetes, whereas a patient with a family history of diabetes does not.

Modifiers are an important dimension of information modeling, but they are a superset of the problem of Negation, which carries additional issues of repetition and scope.

<anonymous>

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends

#### Certainty

Class in package 'Out of scope items'

Certainty

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Data Quality Concern

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Certainty to Data Quality Concern[ Direction is 'Source -> Destination'. ] |

#### Data Quality Concern

Class in package 'Out of scope items'

Data Quality Concern

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Aggregation from Data Quality Concern to Provenance[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Certainty to Data Quality Concern[ Direction is 'Source -> Destination'. ] |

#### Expectation

Class in package 'Out of scope items'

Expectation

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Expectation to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Risk to Expectation[ Direction is 'Source -> Destination'. ] |

#### Fact Regarding Other Person

Class in package 'Out of scope items'

Fact Regarding Other Person

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Fact Regarding Other Person to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Family History to Fact Regarding Other Person[ Direction is 'Source -> Destination'. ] |

#### Family History

Class in package 'Out of scope items'

Family History

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Fact Regarding Other Person

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Family History to Fact Regarding Other Person[ Direction is 'Source -> Destination'. ] |

#### History of condition

Class in package 'Out of scope items'

History of condition

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Temporally remote fact

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from History of condition to Temporally remote fact[ Direction is 'Source -> Destination'. ] |

#### Likelihood

Class in package 'Out of scope items'

Likelihood

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Aggregation from Likelihood to Indicative statement[ Direction is 'Source -> Destination'. ] |

#### Provenance

Class in package 'Out of scope items'

Provenance

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Aggregation from Provenance to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Aggregation from Data Quality Concern to Provenance[ Direction is 'Source -> Destination'. ] |

#### Risk

Class in package 'Out of scope items'

Risk

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Expectation

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Risk to Expectation[ Direction is 'Source -> Destination'. ] |

#### Temporally remote fact

Class in package 'Out of scope items'

Temporally remote fact

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Temporally remote fact to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from History of condition to Temporally remote fact[ Direction is 'Source -> Destination'. ] |

### Absence of phenomenon

Class in package 'Negation Domain'

An assertion that a phenomenon is not observed in the patient, implying but not specifying that the observation process used should be sufficient to detect the phenomenon were it present.

This is a common pattern in "chart by exception" scenarios.

Also note that any negative evaluation of presence statement may also be represented as an "absence of phenomenon."

Absence of phenomenon

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/27/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Absence of phenomenon to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Absence of phenomenon derived from 'not found' to Absence of phenomenon[ Direction is 'Source -> Destination'. ] |

### Absence of phenomenon derived from 'not found'

Class in package 'Negation Domain'

Absence of phenomenon derived from 'not found'

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/27/2017

Extends Absence of phenomenon

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Absence of phenomenon derived from 'not found' to Absence of phenomenon[ Direction is 'Source -> Destination'. ] |

### Action aborted

Class in package 'Negation Domain'

Action aborted

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Record of action

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Action aborted to Record of action[ Direction is 'Source -> Destination'. ] |

### Action not done

Class in package 'Negation Domain'

Actions not done are typically captured in order to explain why they were not done.

Action not done

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

Extends Record of action

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Action not done to Record of action[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Not done derived from 'not found' to Action not done[ Direction is 'Source -> Destination'. ] |

### Condition

Class in package 'Negation Domain'

Condition

Version 1.0 Phase 1.0 Proposed

Jay created on 2/24/2017. Last modified 2/24/2017

Extends Presence of phenomenon

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Condition to Presence of phenomenon[ Direction is 'Source -> Destination'. ] |

### Evaluation of characteristic

Class in package 'Negation Domain'

A statement of the value of a property or attribute of the patient, typically expressed as a question/answer or name/value pair.

E.g., blood pressure = 120/90, breath sound quality = normal, smoking status = smoker.

Whether the indicative statement should contain the question/name as well as the answer/value (rather than refer to it) is a design question.

Also note that any "absence of phenomenon" statement may also be represented as an evaluation, given a defined question with which to do so.

Evaluation of characteristic

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/27/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Evaluation of characteristic to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Intent absent to Evaluation of characteristic[ Direction is 'Source -> Destination'. ] |

| ASSOCIATIONS |
| --- |
|  Association (direction: Source -> Destination)  |
| Source: Public (Class) Evaluation of characteristic  | Target: Public (Class) Interrogative question  |

### Imperative direction

Class in package 'Negation Domain'

A request, demand, suggestion or prohibition that an act be performed in the future.

Such direction may include reasons for doing it and reasons for not doing it, whether it is a demand or a prohibition.

Imperative direction

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Prohibition to Imperative direction[ Direction is 'Source -> Destination'. ] |
|  Generalization from Order to Imperative direction[ Direction is 'Source -> Destination'. ] |

| ATTRIBUTES |
| --- |
|  reasonForInaction : PrivateWhy the action was not done or is not to be done. E.g., contraindication, complication.[ Is static False. Containment is Not Specified. ] |
|  reasonForAction : PrivateWhy the action is done or intended. E.g., a clinical indication, a protocol.[ Is static False. Containment is Not Specified. ] |

| ASSOCIATIONS |
| --- |
|  Association (direction: Source -> Destination)  |
| Source: Public (Class) Record of action  | Target: Public (Class) Imperative direction  |

### Indicative statement

Class in package 'Negation Domain'

A statement of fact, as opposed to an instruction (imperative), possibility (subjunctive), or question (interrogative).

Indicative statement

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Temporally remote fact to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Presence of phenomenon to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Expectation to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Evaluation of characteristic to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Aggregation from Likelihood to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Record of action to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Absence of phenomenon to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Aggregation from Provenance to Indicative statement[ Direction is 'Source -> Destination'. ] |
|  Generalization from Fact Regarding Other Person to Indicative statement[ Direction is 'Source -> Destination'. ] |

### Intent absent

Class in package 'Negation Domain'

Two kinds of intent have been identified.

A patient may grant or withhold permission to conduct a procedure. This is typically captured as the answer to an explicit questions.

A patient may also concur or disagree with a goal assertion. Goal assertions may be captured as independent phenomena, but can be captured in response to care planning questions. Denial of a goal is typically a response to a proposed goal.

Intent absent

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

Extends Evaluation of characteristic

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Intent absent to Evaluation of characteristic[ Direction is 'Source -> Destination'. ] |

### Interrogative question

Class in package 'Negation Domain'

A question, typically about a characteristic of a patient, for which the answer is the indicative statement. The question may take the form of the name of a property, implying the question 'what is the value of this property?'

E.g., blood pressure, breath sound quality, smoking status.

Interrogative question

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/27/2017

| ASSOCIATIONS |
| --- |
|  Association (direction: Source -> Destination)  |
| Source: Public (Class) Evaluation of characteristic  | Target: Public (Class) Interrogative question  |

### No known drug allergy

Class in package 'Negation Domain'

Assertion that no drug allergy is known to be present in the patient. This can be understood as an explicit negation, with the scope of substances to which the patient has been exposed, or as a null value with respect to other substances.

No known drug allergy

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/27/2017

### Not currently taking medication

Class in package 'Negation Domain'

Observation that a patient has not recently taken a medication, without reference to any specific administration. This can be a generic statement, as in "not on any medications" or a specific observation, such as "not on any blood thinners."

Does the concept of 'habitual' obtain here, or only recency?

Not currently taking medication

Version 1.0 Phase 1.0 Proposed

Jay created on 2/22/2017. Last modified 2/27/2017

### Not done derived from 'not found'

Class in package 'Negation Domain'

Quality measures may need counts of actions done and not done, and they will necessarily count actions not found as not done. These derived facts can be used for quality measure calculation and persisted for audit, but they cannot be relied upon for clinical use.

Not done derived from 'not found'

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/27/2017

Extends Action not done

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Not done derived from 'not found' to Action not done[ Direction is 'Source -> Destination'. ] |

### Order

Class in package 'Negation Domain'

Instruction to take action. This class represents an intent that action be taken irrespective of strength or workflow; i.e., it includes suggested and planned as well as ordered procedures.

Order

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

Extends Imperative direction

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Order to Imperative direction[ Direction is 'Source -> Destination'. ] |

### Presence of phenomenon

Class in package 'Negation Domain'

A statement asserting that a phenomenon is observed in the patient. This is typically used for phenomena understood as 'conditions' -- enduring physiological states about which a patient or caregiver may have appropriate concern.

E.g., diabetes mellitus, pregnancy, hypertension.

Whether these phenomena can be categorically differentiated from "evaluation" values (characteristics to be evaluated, typically as a question/answer or name/value pair) is a vexed question, but usage requires that we address both.

Presence of phenomenon

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Presence of phenomenon to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Condition to Presence of phenomenon[ Direction is 'Source -> Destination'. ] |

### Prohibition

Class in package 'Negation Domain'

Indication that a procedure is to be avoided.

Prohibition

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

Extends Imperative direction

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Prohibition to Imperative direction[ Direction is 'Source -> Destination'. ] |

### Record of action

Class in package 'Negation Domain'

A statement about an action. The action might be in any state -- performed, planned, prohibited, not done, etc.

An action may have reasons for and against execution. If there is no actual order from which to derive these values, they belong in the record statement itself.

Whether the act is in fact performed cannot be inferred from the pro and con reasons: it must be explicitly stated (whether in an attribute or in a class definition).

Record of action

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/23/2017

Extends Indicative statement

| OUTGOING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Record of action to Indicative statement[ Direction is 'Source -> Destination'. ] |

| INCOMING STRUCTURAL RELATIONSHIPS |
| --- |
|  Generalization from Action not done to Record of action[ Direction is 'Source -> Destination'. ] |
|  Generalization from Action aborted to Record of action[ Direction is 'Source -> Destination'. ] |

| ASSOCIATIONS |
| --- |
|  Association (direction: Source -> Destination)  |
| Source: Public (Class) Record of action  | Target: Public (Class) Imperative direction  |

### refused

Class in package 'Negation Domain'

refused

Version 1.0 Phase 1.0 Proposed

Jay created on 2/8/2017. Last modified 2/8/2017