**Definitions for ‘variable specifications’**

An independent variable specification is an information entity about a realizable which is part of a study design. In formulating a study design, an independent variable specification specifies a type of entity of which specific representative instances will be selected in the study design execution to determine the relationship between the independent variable and a dependent variable. (between the type the independent variable specification specifies and the type the dependent variable specification specifies)

An independent variable specification is an information artifact which is part of a study design that is used to specify a type of entity of which specific representative instances will be selected in the study design execution to determine the effect of variation in the independent variable on a dependent variable.

A controlled variable specification is an information artifact which is part of a study design that is used to specify a type of entity of which a constrained set of instances will be selected in the study design execution in order to account for influences which could prevent determination of the effect of variation in the independent variable on a dependent variable.

**Day 1: specimen / sample**

A specimen role is a role borne by a material entity that is realized in a process of gathering and storing that occurs in order for the material entity to be potentially used as a specified input during an investigation.

specimen is a material entity that has role specimen role (defined class).

Example: Biobanking, e.g. blood taken and stored in a freezer for potential future investigations.

A material sample role is a role that is borne by a specimen that was gathered from a material entity to be representative of a whole.

AI for AR: Alan has issue with sample being one of distribution

material sample is a material entity that has role material sample role (defined class).

Example: blood drawn from patient to monitor his glucose level.

material sample is\_a specimen

all specimens are not material samples

specimen gathering process is\_a planned process with the objective to obtain and store a specimen a material entity for potential use as an input during an investigation (implies specimen gathering objective)

material sampling process is\_a planned process with the objective to obtain and store a speciment that is representative of the input material entity

(We will have to be able to answer for a given material sample what material it is representative of; that may require adding a role for the 'sampled material'. Right now we will use the input relation. This is not always a material separation)

Issues: when do things stop bearing the sample / specimen role? Answer: When specimen is destroyed, or sample looses representativeness for whole

**Day 2: Specimen Sample reworked by Barry:**

specimen gathering process =def. a planned process with the objective of obtaining a material entity that is to be potentially used as an input during an investigation   
  
(implies specimen gathering objective, implies material entity that is input to a specimen gathering process)   
  
specimen role =def. the role that is borne by a material entity obtained through a specimen gathering process and that is realized by the process of gathering and potentially storing and using in an investigation   
  
specimen =def. a material entity that has role specimen role (defined class).   
  
Example: Biobanking, e.g. blood taken and stored in a freezer for potential future investigations.   
  
material sampling process =def. specimen gathering process with the objective of obtaining a specimen that is representative of the input material entity   
  
material sample role =def. a role that is borne by a specimen that is the output of a material sampling process   
  
material sample =def. a material entity that has role material sample role (defined class)   
  
material sample is a material entity that has role material sample role (defined class)   
  
Example: blood drawn from patient to monitor his glucose level.   
  
material sample is\_a specimen   
  
not: specimen is\_a material sample   
  
material sample role is\_a specimen role