Issue 30: Question and Multiple Question Item

Current GSIM v1.0:

Question:

- Definition: describes the text used to interrogate a respondent, the Concept that is measured and the allowed responses.
- One specific type of Question is the Multiple Question Item
- Relationships:
    - Question HasSubtypeOf Multiple Question Item
    - Question References Variable (Cardinality: Mandatory, many)
    - Question References Value Domain (Cardinality: Mandatory, many)

Multiple Question Item:

- Definition: a construct that has all of the properties of a Question but additionally links to sub questions.
- A Multiple Question Item is a specific type of Question
- Relationships:
    - Multiple Question Item IsSubtypeOf Question
    - Multiple Question Item Includes Question (Cardinality: Mandatory, many)
    - Multiple Question Item Includes Multiple Question Item (Cardinality: Optional, many).

Question has a sub-type - Multiple Question Item. Question is also used as a sub-question within Multiple Question Item.

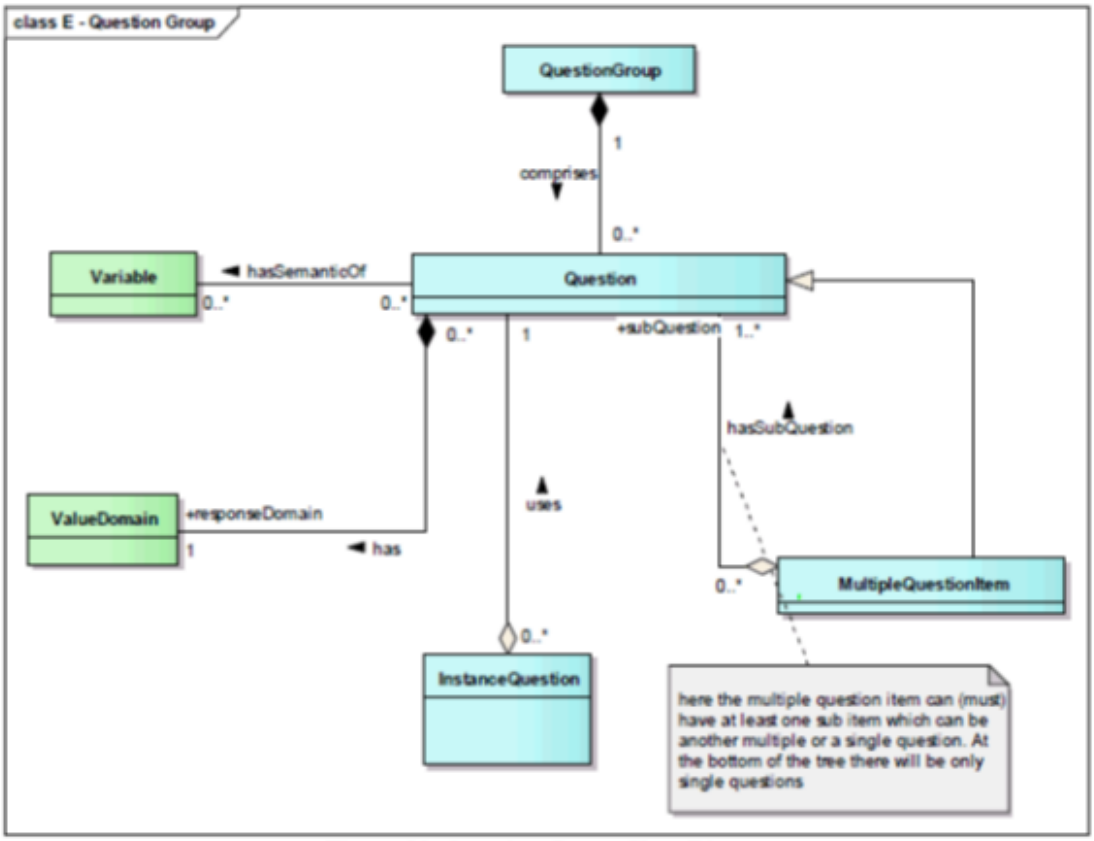


Figure 33. Question Group Class Diagram

Issue

Currently the definition of question is ambiguous. The role in which it is being used in the current model is to conceptually describe a question (in an instrument), and yet it also has a subtype 'Multiple Question Item', which further defines a particular type of question, different to 'question'.

Should 'question itself be the definition of questions 'conceptually' (ie, it covers all types of questions), and then at an implementation level, the varying types can be further defined? Or are Question and Multiple Question Item significantly different enough that they warrant being two separate objects, in which case should it really be a subtype of Question?

The rule documented in Figure 33 implies it should be possible to identify what is a "single question". This might be termed a (single) "*Question Item*" which would be a more constrained 'subtype' of *Question* as an abstract.

In order to achieve some consistency in the implementation of GSIM, it would also be useful to provide a broad indication of what can be considered a coherent *Question* at the conceptual level. For example, if a set of '*Question Items'* have a looser conceptual relationship to each other and less similarity in response domains, at what point (roughly) is it appropriate to stop considering them as sub-questions within a *Multiple Question Item* and start considering them as a potentially reusable *Question Block* (Eurostat's Concepts and Definitions Database, drawing on a paper on Survey Design and Statistical Methodology Metadata from the US Bureau of the Census, says that a question which contains other questions is synonymous with *Question Block*.)

Another reason for clarifying this part of the modelling within GSIM is to be able to clearly and consistently guide, from the 'conceptual to implementation' direction, the relationship between GSIM and DDI3.2, which introduces *DDI3.2 Question Grid* but does not include a direct equivalent to *DDI3.1 Multiple Question Item*. The example of *DDI3.1 Multiple Question Item* provided in the documentation of DDI3.1 would correspond with a *DDI3.2 Question Grid.*

ABS - and we believe other agencies - have identified cases where current business practice is to assign a single 'Question Number' to a set of " *Question Items"* which could not be described as a *DDI3.2 Question Grid.* At least for the ABS examples identified so far, however, a strong case can be made for these examples that conceptually the set of "*Question Items*" concerned could be considered a *Question Block,* rather than being considered to form a single coherent *Multiple Question Item*.

This comes back to the logical definition of *Multiple Question Item.* Would a *DDI3.2 Question Grid* correspond to a *Multiple Question Item* in GSIM terms or would it be considered a '*Question Item'* with a dimensional response domain?

If a *DDI3.2 Question Grid* would be considered a *Multiple Question Item* under GSIM then Figure 33 would seem to require 'sub-items' to describe (presumably) the individual 'single question' cells in the grid.

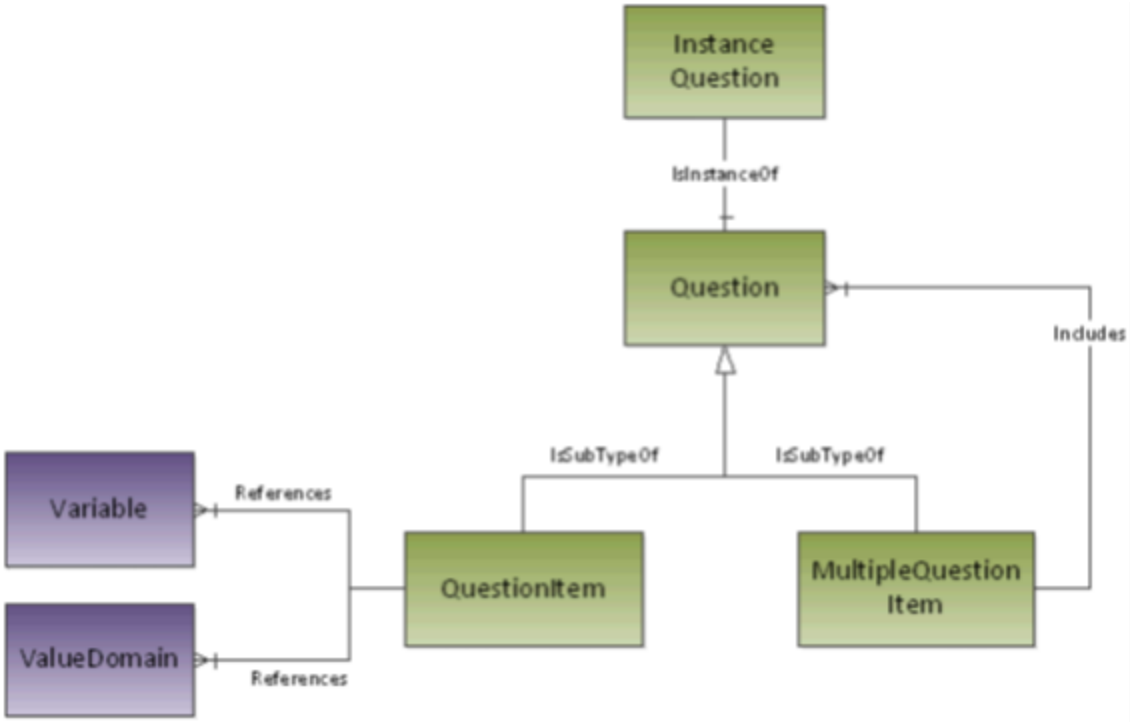
Solution Options

1. Remove Multiple Question Item as an object, and leave Question as a broader definition.

The definition of *Question* is broad enough that it can cover all types of question, regardless of whether it is a 'single' question or a multiple question item. To keep the model at a conceptual level, should there only be one object in this space (*Question*), and any further sub-types of this are decided in implementation?

2. Question as abstract object, with sub-types Question Item and Multiple Question Item.

Treat the *Question* object as an abstract object; and create another sub-type of *Question* to represent a 'single' question, called *Question Item*. That is, *Question Item* and *Multiple Question Item* would now both be sub-types of the abstract object *Question*. This would also involve changing the definition of *Multiple Question Item* (see picture and alternate definitions below). This option could also be expanded in the future for further types of question, for example if Question Grid was to be included as another question type.



Alternate definitions

Question:

- Definition: Describes the text used to interrogate a respondent, the Concept that is measured and the allowed responses.
- Question has sub-types Question Item and Multiple Question Item
- Relationships:
    - Question HasSubtypeOf Question Item
    - Question HasSubtypeOf Multiple Question Item

Question Item:

- Defition: A Question used to interrogate a respondent, the Concept that is measures, and the allowed responses.
- Question Item is a subtype of Question
- Relationship:
    - Question Item IsSubtypeOf Question
    - Question Item References Variable (Cardinality: Mandatory, many)
    - Question Item References Value Domain (Cardinality: Mandatory, many)

Multiple Question Item:

- Definition: A construct that has all the properties of a Question but additional links to sub-questions
- Multiple Question Item is a subtype of Question
- Relationships:
    - Multiple Question Item IsSubtypeOf Question
    - Multiple Question Item Includes Question (Cardinality: Mandatory, many).

Recommendation

The ABS does not have any particular recommendation of solution options for the time being. For implementation in the ABS Transitional Metadata Model that is currently being developed, we have chosen to implement the second option - having both *Question Item* and *Multiple Question Item* as subtypes of the abstract *Question*.