Introduction to Ibex: Variables and the structure of data_includes

Introduction:
- Ibex experiments are coded in the file **data_includes**.
- data_includes has **three sections of code**, called **variables** (var).
- Each var contains a list of elements, which can be controllers, names for groups of experimental items, or individual experimental items.
- The elements in the vars determine which experimental items are displayed, how experimental items are presented, and the order in which experimental items are displayed.
- The three vars are **var shuffleSequence**, **var defaults** and **var items**.

Var shuffleSequence:

```
var shuffleSequence = seq(anyType);
```

- var shuffleSequence determines the order in which experimental items are presented. Order of presentation can be randomized by adding an element like **rShuffle** to var shuffleSequence.
- For now, var shuffleSequence will have only one element, **seq**, which will have one argument, **anyType**. Seq(anyType) defines the simplest shuffleSequence allowed by Ibex: it tells Ibex that the experimental items in var items should be presented in the order in which they appear in data_includes. No randomization or shuffling.

Var defaults:

```
var defaults = [
"AcceptabilityJudgment", {as: ["1", "2", "3", "4", "5", "6", "7"],
presentAsScale: true,
instructions: "How plausible is this event?",
leftComment: "not at all plausible",
rightComment: "very plausible",
},

];
```

- **Var defaults** allows you to specify which **options** a given controller should appear with in each item where that controller is used.
- **Options** are parameters that determine how controllers are presented and how participants may respond.
- For example, the code in var defaults above contains options for the **AcceptabilityJudgement** controller. These options are **as**, **presentAsScale**, **instructions**, **leftComment**, and **rightComment**. The **as** option determines the possible

responses available to participants. In this case, the possible responses are buttons labeled 1-7.

- **as** is an obligatory option for most controllers, since it determines how participants may respond to items using those controllers. For example, if we want participants to answer a 'yes/no' question using the **Question** controller, the **as** option should be assigned the arguments "yes", "no".

- Other options can be set using **true** or **false**. For example, the code above includes the **presentAsScale** set to true. This ensures that the numbers 1-7 in the as option are presented as a scale.

- The **instructions** option takes a string as its argument, in this case "How plausible is this event?" This string will be displayed under the scale in each item using the **AcceptabilityJudgement** controller. Similarly, the ends of the scale can be labelled by assigning strings to the **leftComment** and **rightComment** options. In this case, the defaults are "not at all plausible" and "very plausible".

- The options that are specified in var defaults for the **AcceptabilityJudgement** controller will be displayed for every experimental item that uses the **AcceptabilityJudgement** controller.

Var items:

```
var items = [

   ["Test_1gn", "AcceptabilityJudgment", {s: "The professor sent the grant to
an administrator after he was finally finished."}],

];
```

- The final variable in data_includes is **var items.** Var items is an array that contains a few lines of code for each experimental item included in the experiment. The code above shows code for one experimental item.

- Each experimental item is in square brackets (**[   ]**). The first component of each item is the **item type**, for example "THEME-Given-first". Item type is used to differentiate the major categories of items in the experiment. For example, one might use "Test" as the item type for all of the test items and use "Filler" for all of the filler items. Separating items by item type is useful for randomization.

- The next part of the code is the **controller name**, which is "AcceptabilityJudgement". The controller name indicates that this item will be presented as an acceptability judgement.

- The final part of the code is the option **s.** **s** takes as its argument the sentence that will be presented in the item. In this case, **s** contains the sentence that participants will judge.

- Notice that the options **as**, **presentAsScale**, **instructions**, **leftComment**, and **rightComment** are missing. Since these options were specified in var defaults, they do

not have to be stated again in the code for each individual item. These options will be set automatically for every item that uses the **AcceptabilityJudgement** controller.

A simple experiment:


```
var shuffleSequence = seq(anyType);

var defaults = [
"AcceptabilityJudgment", {as: ["1", "2", "3", "4", "5", "6", "7"],
presentAsScale: true,
instructions: "How plausible is this event?",
leftComment: "not at all plausible",
rightComment: "very plausible",
},

];

var items = [

   ["THEME-Given-first", "AcceptabilityJudgment", {s: "The professor sent the
grant to an administrator after he was finally finished."}],

];
```

- When this code is pasted into data_includes, it will produce an experiment consisting of one acceptability judgement item that contains the sentence "The professor sent the gran to an administrator when he was finally finished." The item will look like this:

- All of the options specified in var defaults are present in this item: the scale has the seven numbers specified in the **as** option; the numbers are presented horizontally and in boxes (as opposed to in a vertical list) because **presentAsScale** is set to **true**; the instructions specified by the **instructions** option are presented under the item; and the ends of the scale are labelled with the labels specified by **leftComment** and **rightComment**. Finally,

the sentence presented is the sentence in the **s** option of the acceptability judgement item in **var items**.

- More items of the same type can be easily added to var items by simply duplicating the code used for the first item and changing the test sentence.