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Background
The field manuals were originally intended as working documents for internal use only. They
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Bloxes.
An interactive task for the elicitation of dimensional expressions
Christel Stolz in consultation with members of the Space Project (particularly Eve Danziger and Eric Pederson)
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General aims

- Bloxes is intended to explore the linguistic encoding of object properties which are henceforth called "dimensions". Dimensions are defined as those object extents (generally geometrical axes, for the objects in this task) which are roughly orthogonal to each other and run parallel to the edges of the object. (This holds for objects with more than one dimension.)

- Bloxes is the "microscopic" complement to the "macroscopic" approach to the investigation of dimensions represented by the "Suggestions for the field research on dimensional expressions" (cf. Field Manual 1995 and this Field Manual). In contrast to the wide range of objects covered by the "Suggestions", Bloxes focuses on a very restricted set of strictly geometrical (and not necessarily culturally appropriate) objects.

- Bloxes allows the cross-linguistic comparison of dimensional descriptions by administering the same task across field sites.

- Bloxes helps investigate cross-linguistic variation of parameters used for the assignment of dimensions by speakers of different languages.

Particular aims

Bloxes is intended to provide answers to the following questions in particular (with respect to individual languages, but also cross-linguistically):

- How are contrasts in only one dimension between rectangular blocks described? Is one expression used for more than one dimension, or is there a unique expression for each dimension of a three-dimensional rectangular object?

- Do the dimensional descriptions of rectangular blocks vary if their orientation is varied (oriented away from the observer, across the observer's line of vision, up)? I.e., do orientational parameters (the vertical, the observer) influence the dimensional descriptions of objects, besides object-inherent parameters (object proportions, gestalt)?

- Does the dimensional description of rectangular blocks differ from the dimensional description of cylinders? Particularly, are the expressions used to refer to the shortest dimension of a block (its "thickness" in English) and to the diameter (or volume or girth) of a cylinder (also its "thickness" in English) different or the same?

- Does the dimensional description of rectangular solid blocks differ from the dimensional description of rectangular containers? Particularly, is there an expression to refer to that dimension of a container which is prototypically oriented downwards (its "depth" in English)? Does this expression refer to more than one dimension of a container, for instance also to another dimension of the same container which is oriented horizontally, but along the line of vision of the observer? If yes, is the same expression also used in the same way for solid objects?

- Do shape or size expressions (i.e., expressions which refer to the overall impression of either shape or size of the entire object) enter the dimensional descriptions of geometrical objects, and if yes, how do they semantically interact with dimensional expressions (i.e., expressions which refer to one individual dimension of an object)?

Short characterization

Bloxes is an object-object-matching task for the elicitation of descriptions of minimal dimensional contrasts between simple (i.e., weakly featured) geometrical objects, namely rectangular blocks, rectangular boxes, and cylinders. Each Bloxes Task consists of 4 trials and 2 - 3 training sessions.

Material
- 1 instructions sheet
- 7 photos (3 for the training sessions and 4 for the trials)
- 2 sets of 5 rectangular blocks (see photo and below for measurements)
- 2 sets of 4 cylinders (see photo and below for measurements)
- 2 sets of 5 cardboard boxes (see photo and below for measurements; the boxes are provided as flat paper sheets and can be glued or stapled together in the field)
- 2 sets of 7 distractors ("interesting things"): 2 sets of 3 different types of same-colour vehicles (jeep, truck, tractor), 2 sets of 2 popbeads (2 different colours), 2 sets of 2 Duplo Easy Blocks (same 2 colours as popbeads). If you do not want to take these distractors to the field, use any other culturally appropriate featured objects you find at your field-site. Note that the distractors should be distinguishable rather by colour, function or shape than by orientation.
- 2 sets of 6 "agents": different toy animals

Players

The minimal number of tasks is three (with six players altogether). You cannot count a second pair by just re-playing the task with switched roles. If you want to switch roles to make the task more interesting, let the director become the matcher after two trials. The players should sit side by side, looking in the same direction, with a screen between them.

Task

The players have identical sets of objects in front of them, but in different configurations from one another (see photos).
They also have identical sets of 6 different toy animals which act as "agents" by "selecting" (i.e. being place beside) some of the objects.
The experimenter, guided by the photos provided, places each of the animals in turn beside one of the objects on the director's side, so that the animal is facing the object. Make sure that you place all the animals on the same side of the objects (downhill, east, left, etc.), but **facing** the objects to avoid long discussions concerning their orientation. Announce and count the animals while placing them ("here comes the first/second/third etc. animal"). Counting the animals facilitates the transcription and the subsequent analysis. If you don't want to count during trials, you can also establish a fixed order in which you

always present the animals. After placing each animal, ask the director to describe to the matcher this particular animal's "choice".

Since the orientation of all target objects is identical, but the location of the objects is different for the two players, we hope that they will rather describe gestalt and proportional properties to unequivocally identify the objects.

The goal of each trial is to have the same 6 animals standing beside matching objects on both director's and matcher's side. Note: the goal is for the players to correctly identify the **object** associated with each animal and **not** necessarily to duplicate exactly the spatial configuration of animal plus object (e.g. animal to the left of block etc.).

Game set-up

Most of the actual set-up of each trial is conveyed by the photos which show the director and the matcher configuration for each training session and each trial. **The photos are only meant as a guideline for the experimenter when setting up each trial and should not be shown to the players!**

The photos show both director and matcher configurations of objects, from the players' perspective, with the pointer in the middle symbolising the screen. The director configuration is shown on the left of the photo, the matcher configuration on the right. Note that the director and matcher configurations show the same objects, but the configurations are neither identical nor mirror-image, but vary in different non-systematic ways.

All paper labels that are shown on the photos do not appear in the actual game set-up! They only convey information for the running or analysis of the experiment! The actual game set-up only includes either boxes and cylinders, or blocks, and distractor objects.

For the task, the experimenter spreads out the objects on a normal working surface where the consultants look ahead, but also slightly downward (at an angle of roughly 45 degrees), i.e. the objects can be presented either on a table-top if people are sitting on a chair or stool, or on the ground if people are sitting on the ground. The experimenter places the objects roughly in a square in front of each player, following as precisely as possible the set-up which is given for each trial in the photos. It is important that the objects are not too far away from the players so that they can still perceive the length of objects oriented away from them and look down into the boxes. Note that the players should not be allowed to set up the objects themselves!

Six different toy animals are placed in a heap beside the configurations of objects.

The players can watch the experimenter set up the trials because they must notice the fact that the locations of objects are not identical on both sides of the screen. However, the players should not have enough time and opportunity to memorise the position of the objects on both sides. Some distracting chit-chat might help to prevent this.

All paper labels shown on the photos do not enter the actual set-up of the trials. This is true for the name of each trial which is displayed on a label on top of the pointer, but also for the labels in front of most geometrical objects, which provide the exact measurements of the objects.

All geometrical objects were particularly designed in such a way that their longest (maximal), their second-longest (secondary) and their shortest (minimal) dimensions are easily distinguishable. However, it is possible that the photo perspective distorts propor-

tions and the experimenter finds it difficult to identify the objects or their orientation. In situations of doubt, the measurement labels may serve as a means to unequivocally identify the individual objects.

The geometrical objects are furthermore designed in such a way that there is always one big object, others which differ from it in one or maximally two dimensions (e.g., the target objects), and a tiny object.

For rectangular blocks, the labels give first the length (maximal dimension), then the width (secondary dimension) and then the thickness (minimal dimension) of the object. The **biggest** wooden block is 21 x 9,4, x 4,4 cm, and every other block is either **shorter** (14 x 9,4 x 4,4 cm), **narrower** (21 x 6,9 x 4,4 cm) or **flatter** (21 x 9,4 x 1,8 cm). One block is simply much **tinier** overall.

For the cylinders, the labels give first the length (maximal dimension) and then their diameter. The **biggest** cylinder is 12 x 3,4 cm, the others are either **shorter** (8 x 3,4 cm) or **shorter and thinner** (8 x 2,2 cm), or generally much **tinier**.

If you do not want to take the wooden items along, but rather want to purchase them at your field site, you may not be able to get blocks and cylinders with the same measurements. However, make sure that the general proportions are maintained.

The **biggest** box is 19,5 x 9,5 x 5 cm, and every other box is either **shorter** (14 x 9,5 x 5 cm), **flatter** (19,5 x 9,5 x 2 cm), **shorter and flatter** (14 x 9,5 x 2 cm), or generally much **tinier**.

Additionally, the photos show little labels with the numbers 1 - 6 to the right of some of the objects on the director's side. They indicate the order in which the objects are to be chosen for description. Note that in some trials, there are two numbers beside one object. This means that the object is chosen twice in one trial. The animals which are the "agents" and "select" the objects in each trial can be picked randomly, unless you want to establish a fixed order of animals in order to facilitate further analysis. **Only the order in which the objects are chosen is prescribed by the number labels, not the type of animal!** Before starting Bloxes, make sure that the players agree how to name the animals!

On the photos, some of the numbered labels on the director's side are additionally placed on yellow pads. These pads indicate the target objects of each trial to which you should direct particular attention **during the analysis.** However, the yellow pads have no significance for the actual game set-up, or for the playing of the game.

Between trials, please remove all objects from in front of the players and put them aside on a heap. Select them from the heap for each trial again, even if some of the objects are used in subsequent trials. While setting up training sessions and trials, please avoid to alert the players to the orientation of objects. Do **not** mention the fact that you use the same objects again, but in a different orientation. (Rather do not talk at all about the objects.) In training sessions 1 (or 1a) and 2, and in trials 1 and 2, the used objects are partly the same. While doing those set-ups, make sure that you start with those objects which are new to the second trial and only then set up the objects which are already known from the previous trial.

The experimenter should not interfere when there are mismatches. Only at the end of each trial, encourage the players to compare the "choices" of the animals. First, only the director is allowed to look at the matcher's output in order to correct potential mismatches.

Since matches and mismatches are not very obvious at first sight (the locations of the objects being different on both sides of the screen), you can guide the comparison by alerting the director to the "choices" of individual animals: "Are both cows looking at matching objects or not? What do you think?" etc.

Only after the director is satisfied with the matcher's output, the matcher is allowed to look at the director's side as well.

If there is any discussion after the trials, please tape it as well.

While setting up the objects for Training 1, please instruct the players with a translational equivalent of the following words.

Instructions
"You both will now play a game. You may talk as much and as long as you like, but you may not point or use gestures. This is why there is a screen between you. You both have the same sets of things in front of you (showing identical objects to both players). Although the things are the same, they are set up in different orders for each of you (setting up objects). Furthermore, both of you have the same toy animals beside the other objects (showing identical sets of animals to both players). All animals must stand next to one particular object and face it, and I want each of your animals to finally stand beside and face the same objects when the game is over. I will place (to the director) one animal at a time beside an object so that it is facing it. Then I want you to explain to your partner which of the animals it is, and which object the animal is facing, so that your partner can place the same animal next to the same object on his side of the table. If you (to the matcher) do not understand the explanations of your partner, feel free to ask him until you fully understand which animal you must place near which object. When all animals stand beside an object, the game is over, and you (to the director) can look over the screen and check your partner's result. If it is not similar to your arrangement, you must explain once again. Only when you find the result acceptable, your partner may look over the screen as well and compare results."

Training sessions
For Training session 1, the three same-colour vehicles are set up in different configurations for matcher and director. Note, however, that on both sides, the vehicles have the same orientation. Put three similar animals beside the vehicles of each player. Place one animal facing the vehicle next to which there is the label "1" on the photo. (If distracors have a "front", such as the vehicles, place the animals in such a way that they are facing the front of the object.) Then ask the director to explain to the matcher which vehicle his animal is looking at. If the matcher indicates that he has successfully placed the same animal near the matching vehicle, take another animal and proceed similarly with number "2". After each animal has been placed near a vehicle in Training 1 and you have declared the trial finished, encourage the director to look at the matcher's configuration, and let both players discuss the result, as suggested above.

Training 1a is only needed if the players need to get accommodated to the idea that not any available object is selected in each trial and that one object can be selected by two animals in the same trial. The position of the vehicles should be changed, as indicated on

the photo. The number and type of animals can be maintained. In Training 1a, the tractor is the goal for the first and the third animal. If you think that no special training is needed to introduce this particular idea, feel free to skip Training 1a.

Training 2 introduces the idea that the same objects can occur in subsequent trials, but in changed positions and orientations, and interspersed with new objects. In Training 2, there are five objects and five animals for each player, but one object is chosen by two animals (the first and the fourth) whereas another is not chosen at all. Proceed as in Training 1 and 1a.

Trials 1 - 4

After successfully finishing the training sessions, proceed with the four trials. There are 6 different animals needed for the trials. Referring to which objects are used or which orientation these objects have in the set-up, the trials are called "Boxes & Cylinders", "Maximal axis up" (blocks), "Maximal axis across" (blocks), and "Maximal axis away" (blocks).

Note: Although most of the trials are identified by the orientation of the maximal axis (i.e. dimension), the maximal one is not the only dimension whose orientation is varied! The 3 trials with blocks are designed in such a way that not only the maximal dimension, but also the secondary and minimal dimensions each appear once "up", once "away" and once "across" for the players. So please follow the photo instructions for the set-up very carefully! The exact orientation of dimensions for each trial is additionally specified below.

1.   "Boxes & Cylinders": The maximal dimensions of boxes and cylinders are all oriented away from the players. The openings of the boxes are up, and their secondary dimensions are across the line of vision of the players.

2.   "Maximal axis up": The maximal dimensions of the blocks are standing up, the secondary dimensions are oriented away from the players, and the minimal dimensions are across the line of vision of the players.

3.   "Maximal axis across": The maximal dimensions of the blocks are across the line of vision of the players, their secondary dimensions are standing up, and their minimal dimensions are oriented away from the players.

4.   "Maximal axis away": The maximal dimensions of the blocks are oriented away from the players, their secondary dimensions are across the line of vision of the players, and their minimal dimensions are up.

Note: before running the Game the first time, make sure that you have sufficient practice in quickly setting up the trials!

The order of the four trials is varied, as indicated below. This happens across three pairs of players. If you run this game with more than three pairs, let Pair 4 again use the order of trials for Pair 1, and so on.

<u>Pair 1</u>
1. Maximal axis across
2. Maximal axis away
3. Boxes and Cylinders
4. Maximal axis up

<u>Pair 2</u>
1. Maximal axis away
2. Maximal axis up
3. Boxes and Cylinders
4. Maximal axis across

<u>Pair 3</u>
1. Maximal axis up
2. Maximal axis across
3. Boxes and Cylinders
4. Maximal axis away

Recording

Video recording of the Bloxes Task is recommended. Both the director's and the matcher's actions should be visible, so a camera on the ceiling and/or two cameras for both matcher's and director's sides would be ideal. If you have only one camera, place it in front of the players and slight downwards. Try to cover both director's and matcher's sides, but frequently zoom in on the matcher's side.

If only audio recording is possible, you should additionally note down the order of trials. Since the order of choices within a trial is prescribed by the photos, you only have to note mismatches or any other deviations from the order provided in the photos.