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The contents of manuals, entries therein and field-kit materials are modified from time to time, and this provides an additional motivation for keeping close contact with the Language and Cognition Department. We would welcome suggestions for changes and additions, and comments on the viability of different materials and techniques in various field situations.

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Topological Tasks: General Introduction

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1. General overview.

The *topological tasks* are a set of four different tasks which are designed to address further the question of the semantics of *topological relation markers* or *TRMs* (a term considered better than *spatial adpositions*, since, as our preliminary research has shown, other terms such as spatial nominals or case markers are often involved in a way that cannot be easily analyzed away; sometimes they even are the only terms involved, there being no spatial adpositions). These tasks try to capture two aspects of interest in the semantics of TRMs: first, their **'central meanings'** ('prototypes', 'core meanings', etc.), and second, their **range of extensions** and semantic differentiation. The first aspect we here address through *Task 1*, an associative production task, the second partly through *Tasks 2 & 3*, two picture description tasks that delve in particular detail into three subdomains: *containment, support*, and *adhesion/attachment*. In addition, there is a *questionnaire, Task 4,* which focuses especially on some more complex TRMs often left out of consideration – notions like 'between', 'among', 'opposite', 'along', etc.

Tasks 2 & 3 are quick and easy to do – we recommend them to everyone. Task 1 takes more preparation, but will work well with verbally quick consultants. Task 4 is a quick way to fill in some of the gaps in the Topology Picture Book series.

2. Preparatory tasks.

(a) Topological Relations picture series

The tasks presented here presume that you have good data from the Bow-Ped book. If you also have data from many speakers (at least 5), it is possible to do some statistical analysis on them and thus contribute independent evidence to the central/peripheral meaning research — we strongly recommend that. Thus, the collecting of more Bow-Ped data on your language (in case you don't already have enough) **should be given high priority**. It is also interesting to distinguish in your data between *spontaneously given answers* (i.e. the first reaction of the speaker to the proposed scene) and *accepted answers* (i.e. those which were accepted by the speaker when proposed by the interviewer). *Negative answers* should also be recorded (i.e. suggestions which the speaker considered inadequate).

(b) Ethnography of local objects.
A second *desideratum* comes from claims in the literature (e.g. Nüse, Vandeloise) that the conceptual properties of objects have to be understood in order to clarify their use with TRMs. A 'linguistic ethnography of local objects' is desirable, identifying the basic features that would be relevant for TRM use. For instance, what terms are used to describe the parts of objects, like sides, fronts, backs, middles, etc.? (See also the **Body questionnaire** in this Manual). Which local objects can these terms be applied to? And how? (E.g., does a local house have a 'front'? a 'back'? 'sides'? Does a canoe? Does a gun? Which objects don't?). Try and do an inventory of local objects, and their parts – try going into someone's house with a videocamera, getting the names of all the objects, and descriptions of their parts) . Special attention should be paid to 'unusual' objects (e.g. the Tiriyó have a device for transporting heavy loads · — a *kataari* — which looks like a half-basket, and is carried on the carrier's back, with straps around the carrier's forehead, so that the carrier's back plays the role of the other half of the basket), which may have unexpected topological properties (e.g. is something 'inside' a Tiriyó *kataari* even when it is not on top of the carrier's back?). Be sure to test whether or not a given object has 'parts', i.e. whether or not part terms can be applied to them; and also whether or not TRMs can be used with it. One could, for instance, ask speakers: 'has this knife got an inside?' 'if I say that something is *in* (or *on*, or *under*, or *behind*, etc.) this knife, where would it be?'. One should also try to find out whether objects have canonical

orientations (which can be done while checking their uses with e.g. *in front of*, *behind*, etc.). Video or annotated photos (as with digital stills from your videocamera) would be very useful.

Note: Attention should also be paid to the relation between *words* and *things*, since a word for a given thing may also be more prototypically associated with a part of it. For instance, the Tiriyó general word for 'house' refers prototypically to 'roof' (which comes from the fact that their traditional dwellings had no walls); certain curious Bow-Ped results (such as e.g. 'the spider is under the house' and 'the spider is in the house' for the same scene) become intelligible when we realize that the Tiriyó *pakoro* 'house' refers to the roof in the first case but to the whole building in the second. Analogous problems with the semantics of the terms for local objects may occur; it is a good idea to try to identify them (they should become visible while the researcher is testing his/her list of local objects).

Task 1: TOPOLOGICAL RELATION **PROTOTYPES** TASK

TRM prototypes

- **Relevant Project: space**
- **Priority:** MID
- **Basic nature of the task.** This is basically an *associative-memory production task* ("Say what comes into your head when I say this...") with two separate subtasks, involving *utterance completion* (speakers are asked to complete a certain number of utterances) and *utterance production* (speakers are asked to come up with utterances according to a certain pattern). These can be treated like 'linguistic games', and can be reasonably fast and efficient, but the materials need to be carefully worked out on a language-specific basis in advance. The tasks are based on the experimental design from Nüse 1999,[2] so have been tried and tested on German subjects.
- **Motivation.** The basic idea behind this task) is to assess the *most frequent Figure-Ground pairs* which are prompted by a certain topological marker (not necessarily 'adposition'). It is assumed that the most frequent pairs are close to the 'prototype' or 'core' meaning of the topological relation in question, and can be taken to be the *most salient instantiations in reality* of topological relations, and are thus an interesting target for cross-linguistic comparison. (A first stab at 'prototypicality' can be taken with statistics made on the data from Bowerman and Pedersen's Topological Relations Picture Series, in case there are answers from sufficiently many speakers; it will be interesting to whether these statistics correlate with the results of the task proposed here).
- **How to run.**
   Select a fair number of speakers (at least 5, ideally 10) to run the two sub-tasks. Ideally, different sets of speakers should do each sub-task. If you need to work with the same speaker in both sub-tasks, do it on different days to avoid transfer effects.
   Select the TRMs that you want to examine from those concerned with *general locative relations, containment, support,* and *proximity* (see the General Topological Introduction). (A first list of possibly interesting markers should come from the Topological Relations Picture Series data).

A. Utterance Completion Subtask.

In this subtask, the Ground is held constant, and varied with TRMs, and the speakers have to supply a Figure for each target topological relation. The idea is to see what kinds of Figures speakers will come up with to complete the sentence that indicates a certain topological relation with the chosen Ground. One expects Grounds with different geometrical properties to suggest different kinds of Figures.

Preparation

a) For this task, use the following Grounds –have the actual physical exemplars before you:
   (1) a *square box* (the most 'construal-rich' 3D Ground, since it can be a container, and it has upper, lower, and lateral surfaces);
   (2) a *ball* (still a 3D Ground, but without the surfaces);
   (3) a *long stick*, maybe an arrow or a spear, held in upright position, like a pole (approximately a 2D Ground).
Notice that not all topological relations will be possible/felicitous for certain Grounds (e.g.

[2] R. Nüse, 1999. General Meanings for German *an, auf, in* and *unter:* Towards a (neo)classical semantics of topological prepositions. PhD dissertation, Humboldt Univ., Berlin.

?along the ball); speakers will probably mention this during the task – keep a record of the rejected possibilities too.

b) **Choose a *neutral locative construction*** from your language and formulate a template sentence for each topological relation marker, with the square box as the Ground, but without a Figure. In English, you could try copular sentences like *On the box (there) is ....*, *Under the box (there) is ...*, *In the box (there) is ...*, and so on, till the end of the list of interesting topological relation markers. In languages with positional verbs, a 'generic copula' is often not available, and a different construction must be chosen, so as to avoid the possible interference caused by the semantics of the positional verbs. In Dutch, it would be possible to use the 'modifying PP' construction as e.g. a subject: *De/het ... op de doos is goed*; *De/het ... aan de doos is goed*; *De/het ... in de doos is goed*; or as an object: *Ik zie (de/het) ... op de doos*; *Ik zie de/het ... aan de doos*; *Ik zie de/het ... in de doos*, etc. **Prepare these templates** (i.e. chosen construction with TRMs and Grounds but missing figures) as a written list in advance.

Running the task

Show the first ground (the square box) to the first speaker. Explain that you are going to read a number of sentences which you want him/her to complete. Explain that there is no 'right answer', and that the first correct words that come to the speaker's mind are fine. Then **read aloud your templates**, asking for immediate responses (typical figures), and note down the Figures that were selected to complete them. After each sentence, ask the speaker to show you were on the Ground the Figure would be located. Do the same with the other Grounds. Repeat the task with all the other speakers.

B. Utterance production subtask
Preparation
In this task, Figure and Ground are both supplied by the speakers for each topological relation that is given to them. The first step is to *choose a neutral construction involving topological relations*, which can be used as a model for the speakers to imitate. In English, a good model would be 'modifying PPs', as in *the book on the table, the wine in the glasses, the dog by the door*. Relative clauses would work as well (*the book which is on the table*, etc.), but they should be avoided if possible in languages with positional verbs, since their semantic contribution will affect the uses of topological relation markers. The desired result is to get the speaker to produce five (5) instances of the target construction for every given topological relation marker with whichever Figure-Ground combination he likes (i.e., for English, five *NP on NP*'s, five *NP in NP*'s, five *NP inside of NP*'s, five *NP by NP*'s, etc.).

Training
To introduce the idea of 'building an utterance around a word', the best way seems to be to start with a little 'training game,' as in the following example (which has English as the target language; the details must of course be changed by the researcher to fit the language s/he works with). Using a different construction—e.g. English clauses linked by conjunctions, like *I went there because you asked me, Mary saw the letter after Jill had left, they won't work unless we talk to them*, etc. — try to begin a 'game' in which you mention one utterance (e.g. *I went there because you asked me*), then one 'target word' (*because*, in the example above), and then the speaker gives you more sentences with the same structure as fast as possible (e.g. *You went there because Bill asked you*). The best way to do that is to give a few examples yourself—i.e. a few examples of clauses linked by *because*—and then ask the speaker to come up with some more. After you are satisfied with his/her level of understanding, change the word —not *because* anymore, but *after*—and see if s/he can already give you *Clause after Clause* examples; if s/he can't, then give a few yourself, and start again. After a while, the speaker should understand the mechanics of the game. Then try to change target pattern to the previously selected 'neutral topological construction'. For English, the best way to do that would be to start with *NP Prep NP*

utterances in which the preposition is not topological—e.g. *of*, *with*, *before* in *the leg of the table*, *the can with a hole, the conversation before the meeting*—and repeat the same 'familiarization procedure.' When you see that the speaker has understood the process—e.g. you said *for*, and he came up with e.g. *the present for my mother*—then go on to your target list of topological relation markers. (Of course, if you have more sophisticated speakers, then you can simply show them a few non-topological examples, like the ones above, and then ask for similarly constructed examples with each one of your target topological relation marker; however, such speakers are very scarce, if at all extant, in most field sites).

Test phase
Now simply say the target TRM, and get the speaker to give you five instances of each (e.g. IN: 'dog in kennel', 'letter in envelope', etc.). Note down the five examples given by the speaker for each topological relation marker (if time is important, the answers can also be recorded on tape or minidisk and transcribed later). Proceed on to the next speaker.

- **Comments.**
    a) A general detail about both subtasks is that speakers may sometimes take a while to come up with examples (it *is* a hard task; try it on yourself if you don't think so). The researcher should probably avoid looking like he is 'obviously waiting for a reaction,' by e.g. not looking at the speaker.
    b) The main idea is to get as many *spontaneous cases of Figure-Ground combinations* as possible for every given topological relation marker. The utterance production subtask should give us *unconstrained Figure-Ground associations*; the expectation is that, for every given topological relation, the same objects (or at least objects with similar physical properties) will show up frequently as Figure-Ground pairs; they should be closer to the 'prototype' or 'core meaning' of the topological relation in question. The utterance completion subtask would tell us a bit more about how specific properties of the Ground can affect this prototype. The 'mapping' of the area of the Ground, based on the videotaped indication of the speakers, should also be compatible with the 'prototype' or 'core meaning' suggested by the Figure-Ground pairs.

Another Kind of Prototype Task: "Construct from description"
There is another way to get at prototypes, which is to take the results from e.g. the BowPed Topological relations book, and read them back to subjects and *ask them to make the described arrangement*. This may be especially revealing for closely related TRMs like English *under vs. underneath, on vs. on top of.* Try using the Grounds from the utterance completion task and a convenient Figure —e.g. a little stone—, speakers could be asked to contrast the target elements (e.g., for English, a speaker could be asked: 'if I said, "the stone on the box", where would the stone be? And "the stone on top of the box"? And "the stone at the box"? And "the stone by the box"? etc.). Their answers and reactions can then be videotaped and later analyzed.

The only reason this task is not developed here is that it proved hard to come up with a universally-relevant set of objects for the construction task – but there is nothing preventing you exploring with culture-specific objects as close as possible to BowPed pictures, allowing some cross-linguistic comparison.

Task 2: TOPOLOGICAL RELATIONS: **CONTAINMENT** PICTURE SERIES

- **Relevant Project: space**
- **Nature of task: elicitation** (with the help of pictures).
- **Priority:** HIGH
- **Basic nature of the task.** This is basically a stimulus-and-answer task, in the same spirit of Bowerman and Pederson's Topological Relation Picture Series.
- **Motivation.** The basic idea behind this task is to explore further the notion of *containment*. For that purpose, pictures dealing with a set of possibly relevant features have been produced:

  - full vs. partial containment   1-3; 11-12, 14; 18-19; 20-21; 22-23; 34-37
  - containment in a fluid / granular medium 20-21; 33; 41
  - containment in matter vs. hollow space 13; 18-19; 31
  - 'functional' vs. 'geometrical' containment 27; 28; 32

  The pictures also attempt to explore the variation in use according to the *degree of canonicality* of a containment situation. Thus, the canonical situation in picture 1 ('fruit in bowl') is progressively changed to less canonical cases, involving: (a) the presence of other things inside the bowl (2-3; 10), (b) changes in the position of the bowl itself (4-6; 7-9), (c) the contained object occupies 'intermediate' positions (2; 5; 32); (d) the contained object is a gas (9); the contained object is partially or totally outside of the container (2-3; 5-6; 10; 34-36).

  With this picture series, it is hoped that containment TRMs can be better characterized. Specifically, for languages with more than one containment marker (e.g. English *in* and *inside*), the semantic differences can be investigated in more detail (one hypothesis is that, if there are two *in* terms, the main difference between them is 'full' vs. 'partial' containment, i.e. 'fully in' vs. 'not-necessarily-fully-in').

- **How to run.**
  (i) Select at least three speakers. Proceed as with Bowerman and Pederson's Topological Relations picture series: show the pictures, one by one, to the first speaker, ask 'Where is the X?' (X being the object indicated by the arrow in each figure), and note down his/her answers.
  (ii) Note the picture may need interpreting by you – see the descriptions in the *List of Pictures* at the end. If the speaker does not understand the picture, an equivalent arrangement of local objects can be made so as to make clear what topological relation is intended (as was recommended in the original Bowerman-Pederson picture series).
  (iii) The speaker's spontaneous answers should be marked as such; in each case, the speaker should also be asked for *other possibilities* ('could you say it in some other way?').
  (iii) The researcher should also investigate the possibility of using other TRMs for the same situation ('could you also say it using *inside* instead of *in*?', 'could I say *on the X* instead of *in the X* for this picture?').
  The pattern of first (preferred / spontaneous) and second (possible) answers can help in assessing the role of pragmatics in the choice of terms (e.g. all cases of *inside* should also be second-answer cases of *in*, but not the other way round). Then proceed on to the next speaker. If you work with the printed pictures version, you can show the pictures to the speaker one by one and ask him where the Figure is in each case. If you use the computer version, simply run ACDSee Browser, click on the first picture of the set (size it adequately, and use the 'Lock' option in the Zoom menu to keep all pictures in the same size range), and then show it to the speaker, asking where the Figure is; you can type in his answer as he speaks, and then press the space bar (or page-up and/or page-down) key to go to the next

picture. For most purposes, simply writing down the answer is enough; if speed is important, or if you need more recorded language data, the answers can also be recorded.

- **Comments.**

  If you need more interactive data, you can use the set of pictures to run an alternative picture-picture matching game. For this, you need to take two sets of printed pictures, each consisting of the pictures 1-8, 13, 15, 18-24, 31-36 (i.e. the ones that form series of contrasts). These two sets can be used with the same methodology that was developed for the Men-and-Tree game: one speaker (director) describes a picture, while the other (matcher) tries to find it in the whole set (which is spread out in front of the matcher). It may be interesting in this case to let the director watch the matcher and talk to him, so that interesting indications can be captured. The interaction should be videotaped, so that accompanying gestures and facial expressions can also be examined.

  The picture-picture matching alternative is a good idea for collecting more interactive, general-purpose data. However, it is not recommended here as the standard procedure because speakers can use solutions other than describing the topological relation between the objects to identify the pictures. Of course, this fact is in itself interesting; however, we are also interested in a *topological* description for each picture, which may have to be elicited afterwards if not spontaneously generated during the game, together with the descriptions of the unmatched pictures that were not used in the game.

LIST OF PICTURES

01. fruit in bowl
02. fruit in bowl half full of sand
03. fruit in bowl full of sand
04. fruit in turned bowl
05. fruit on edge of turned bowl
06. fruit out of turned bowl
07. fruit under turned bowl (visible)
08. fruit under turned bowl (invisible)
09. gas/smoke in cheese cover / turned bowl
10. fruit in bowl full of fruits
11. fish in hand
12. pen in hand
13. nail in wood (top)
14. baby in woman
15. fruits in bowl (overflowing)
16. bird in tree (leaves)
17. axe in tree.
18. nail in wood (totally inside)
19. nail in wood (on the side)
20. ship in water
21. fish in water
22. flowers in vase
23. water in vase
24. fruits in bowl (not overflowing)
25. food (meat) on plate
26. fly in glass
27. lightbulb in socket
28. nail in pliers
29. axe in tree trunk
30. antennas in circle

31. worm in fruit
32. fruit (hanging) in bowl
33. worm in grains (rice, corn, beans, etc.)
34. stick in bowl (bottom)
35. stick in bowl (on the side)
36. stick in bowl (coming out)
37. pestle in mortar
38. wood in fire
39. food (meat) on fire
40. teeth in mouth
41. island in lake

CONTAINMENT PICTURES
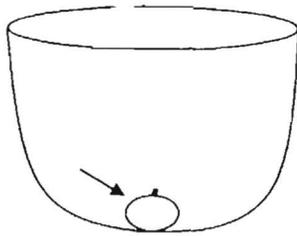
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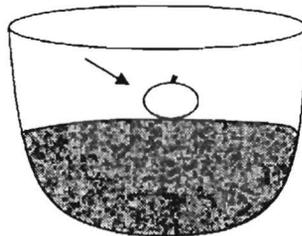
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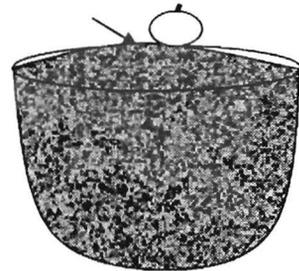
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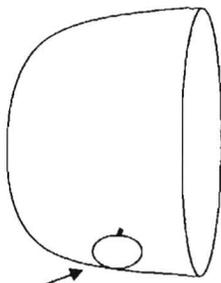
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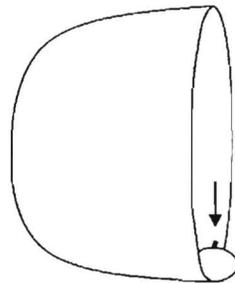
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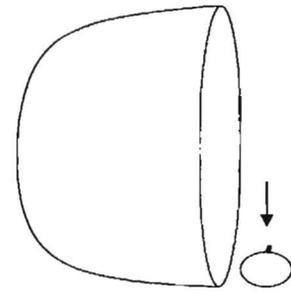
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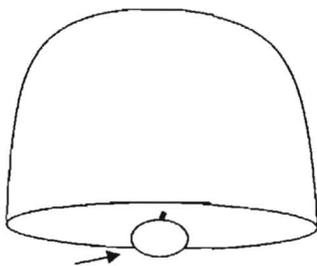
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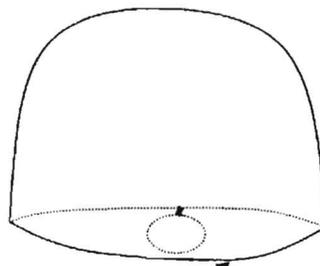
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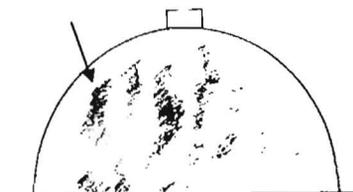
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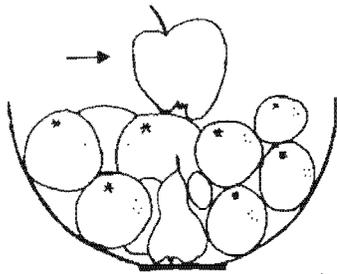
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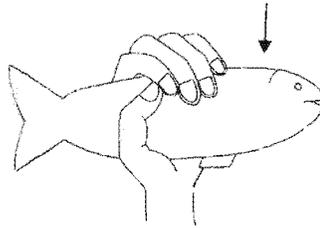
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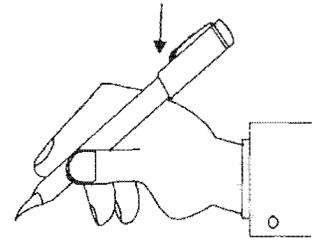
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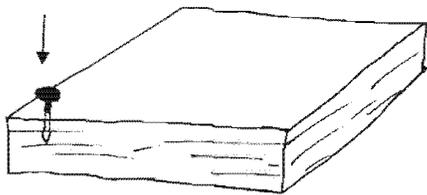
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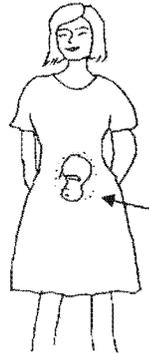
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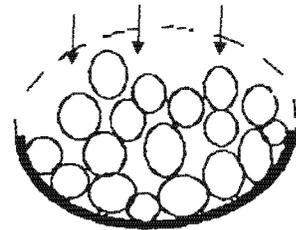
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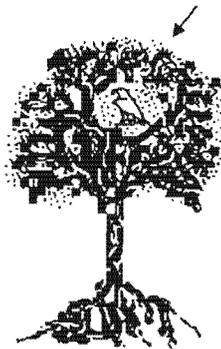
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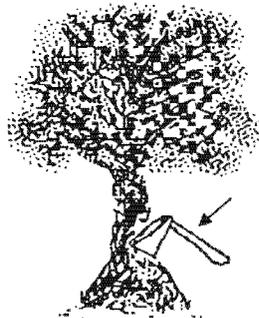
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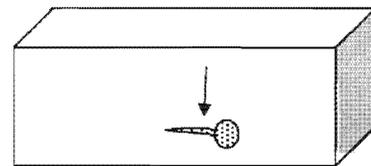
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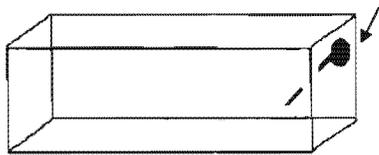
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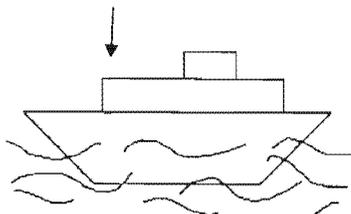
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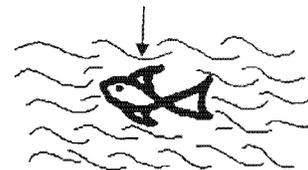
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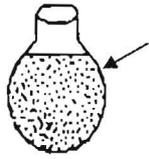
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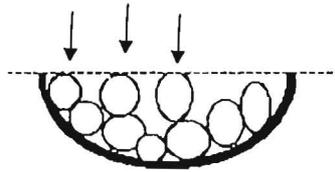
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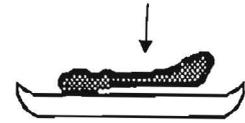
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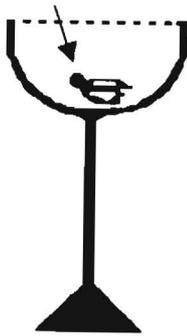
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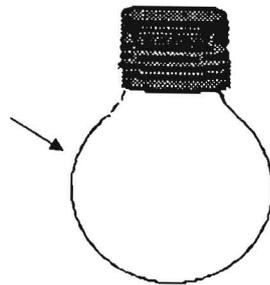
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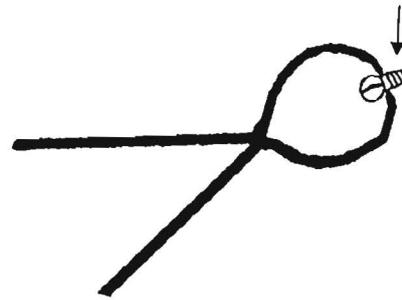
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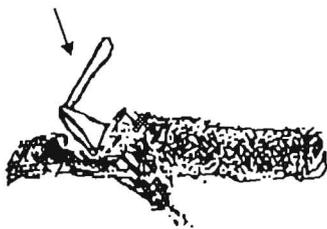
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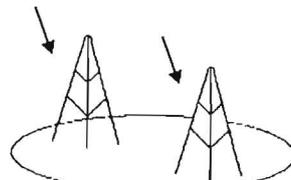
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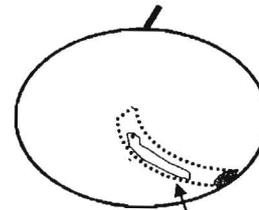
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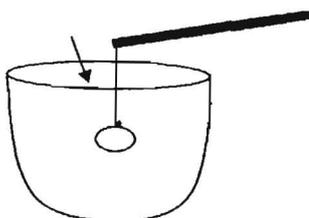
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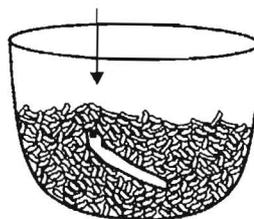
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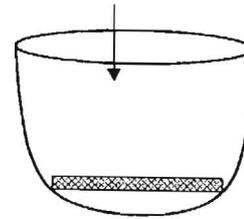
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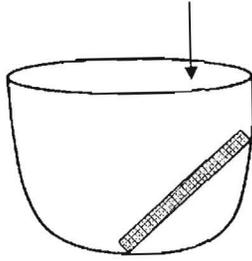
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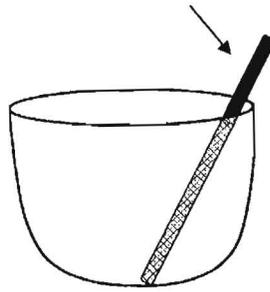
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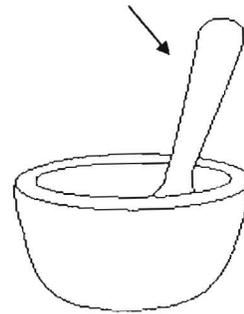
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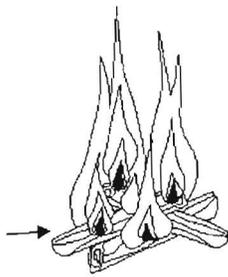
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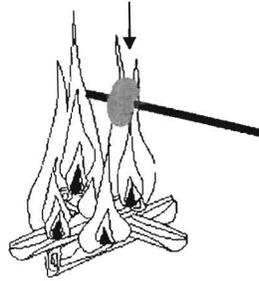
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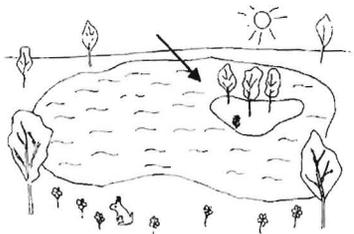
Cnt-41

Support Picture Series

- **Relevant Project: space**
- **Nature of task: elicitation** (with the help of pictures).
- **Priority:** HIGH
- **Basic nature of the task.** This is basically a stimulus-and-answer task, in the same spirit of Bowerman and Pedersen's Topological Relation Picture Series.
- **Motivation.** The basic idea behind this task is to explore further the notion of *contact, support, adhesion*, and *attachment*, taking into account some of our first preliminary results. As in the containment series, pictures dealing with a set of possibly relevant features have been produced:

  - vertical vs. non-vertical support   1-11; 12-17; 18-20; 26-31
  - 'indirect' (non-canonical) support   7; 3
  - vertical support vs. adhesion to horizontal surface   1-7; 8-11
  - one vs. many objects   4
  - on raised surface vs. on ground   1-5; 6
  - adhesion   8-11; 14; 16-17; 42-44
  - adhesion vs. part-whole   12-13; 14-17; 21-22
  - attachment by hanging   23-25; 40-41; 45
  - attachment by piercing   36-39
  - jamming   46-47

  The *degree of canonicality* of support situations was also assessed. The 'canonical vertical support' situation in picture 2 is progressively changed to less canonical cases, involving 'indirect' support (7; 3) and Figure placed on center vs. on edge (1-2; 5); the prototypical 'adhesion' situation in picture 42 is changed by varying the degree of adhesion (in 42-43, the paper sticks 'less strongly' to the pole and is about to be taken away by the wind; in 8, 10-11, the mud sticks less than the band-aid to the top of the table, and in 11 it is about to fall); in 'hanging' cases, the number of supporting strings was also varied (23-25).

- **How to run.** Proceed as for Task 2 -
  (i) Select at least three speakers. Proceed as with Bowerman and Pedersen's Topological Relations picture series: show the pictures, one by one, to the first speaker, ask 'Where is the X?' (X being the object indicated by the arrow in each figure), and note down his/her answers. (ii) Check you have the intended interpretation for the picture by looking at the *List of Pictures* at the end. If the speaker does not understand the picture, an equivalent arrangement of local objects can be made so as to make clear what topological relation is intended (as was recommended in the original Bowerman-Pederson picture series).
  (iii) The speaker's spontaneous answers should be marked as such; in each case, the speaker should be asked for other possibilities ('could you say it in some other way?'). The researcher should also investigate the possibility of using other TRMs for the same situation ('could you also say it using *on top of* instead of *on*?', 'could I say *in the X* instead of *on the X* for this picture?').
  The pattern of first (preferred / spontaneous) and second (possible) answers can help in assessing the role of pragmatics in the choice of terms (e.g. all cases of *inside* should also be second-answer cases of *in*, but not the other way round). Then proceed on to the next speaker. If you work with the printed pictures version, you can show the pictures to the speaker one by one and ask him where the Figure is in each case. If you use the computer version, simply run ACDSee Browser, click on the first picture of the set (size it adequately, and use the 'Lock' option in the Zoom menu to keep all pictures in the same size range), and then show it to the speaker, asking where the Figure is; you can type in his answer as he

speaks, and then press the space bar (or page-up and/or page-down) key to go to the next picture. For most purposes, simply writing down the answer is enough; if speed is important, or if you need more recorded language data (for e.g. acoustic analysis), the answers can also be recorded.

- **Comments.**

  If you need more interactive data, you can use the set of pictures to run an alternative picture-picture matching game. For this, you need to take two sets of printed pictures, each consisting of the pictures 1-11, 12-17, 18-20, 23-25, 31-32, 34-35, 36-44 (i.e. the ones that form series of contrasts). These two sets can be used with the same methodology that was developed for the Men-and-Tree game: one speaker (director) describes a picture, while the other (matcher) tries to find it in the whole set (which is spread out in front of the matcher). It may be interesting in this case to let the director watch the matcher and talk to him, so that interesting indications can be captured. The interaction should be videotaped, so that accompanying gestures and facial expressions can also be examined.

  The picture-picture matching alternative is a good idea for collecting more interactive, general-purpose data. However, it is not recommended here as the standard procedure because speakers can use solutions other than describing the topological relation between the objects to identify the pictures. Of course, this fact is in itself interesting; however, we are also interested in a *topological* description for each picture, which may have to be elicited afterwards if not spontaneously generated during the game, together with the descriptions of the unmatched pictures that were not used in the game.

LIST OF PICTURES

01. bowl on table (to the left)
02. bowl on table (center)
03. bowl on box, box on table
04. several bowls on table
05. bowl on edge of table
06. bowl on ground, next to table
07. bowl on sheet of paper, sheet on table
08. band-aid attached to table (top)
09. bowl glued to table (top)
10. mud (weakly adhering to) table
11. mud (weakly adhering to) tilted table
12. nose on man's face
13. eye(s) on man's face
14. paint on man's face
15. nose ornament on man's face/nose
16. spot on man's face
17. flies on man's face
18. hair band on woman's hair
19. feather on woman's head
20. stick/pencil on woman's ear
21. finger on hand
22. finger nail on finger / hand
23. round swing attached to tree branch
24. vertical swing (doubly) attached to tree branch
25. vertical swing (singly) attached to tree branch
26. parrot on tree branch
27. jaguar/tiger on tree branch
28. person standing on tree branch
29. person straddling tree branch
30. person sitting on tree branch

31. person straddling wall
32. person sitting on wall
33. arrow through tapir (, wild pig, etc.)
34. arrow through fish
35. arrow through tail of fish
36. nail on pole
37. string hanging on nail (not pierced by nail)
38. string hanging on nail (pierced by nail)
39. piece of paper attached (by nail) to pole
40. picture hanging from nail on pole (string pierced by nail)
41. picture hanging from nail on pole (string not pierced by nail)
42. sheet of paper adhering totally to pole
43. sheet of paper adhering partially to pole
44. sheet of paper adhering weakly to pole
        (about to fly off)
45. string on scissors
46. little ball in hand
47. wedge jammed in hole (on tree stump)

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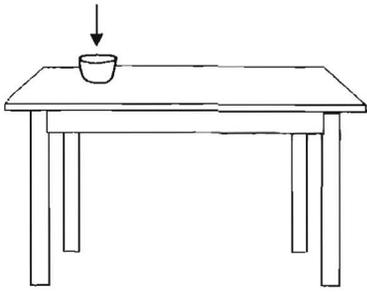
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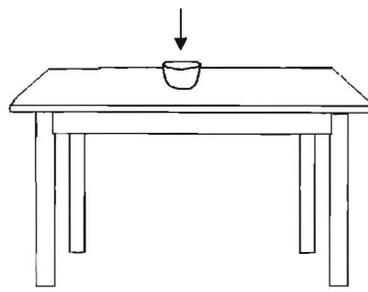
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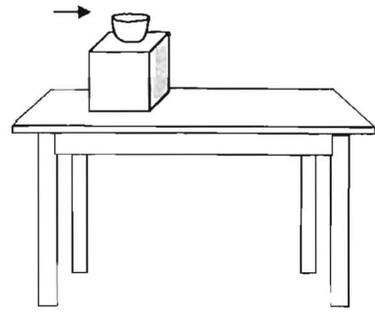
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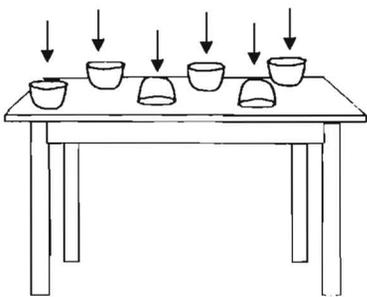
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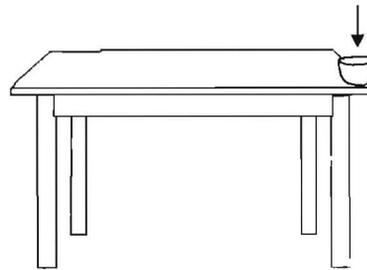
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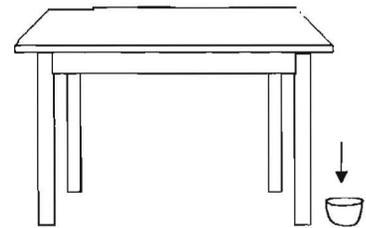
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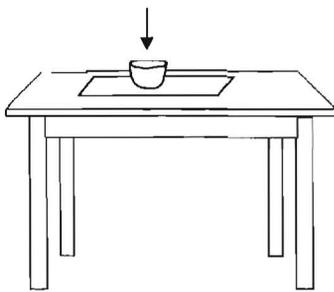
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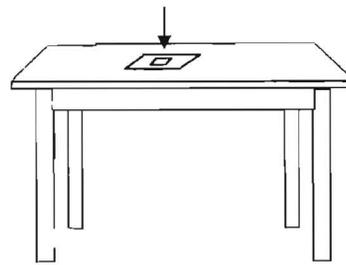
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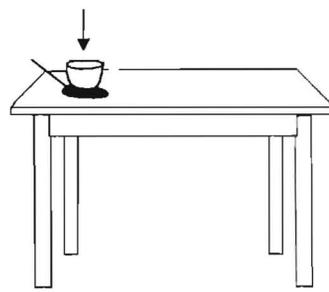
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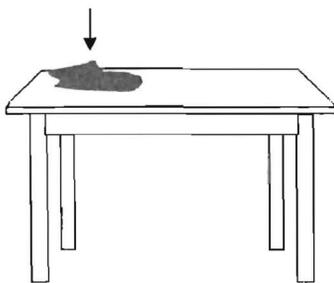
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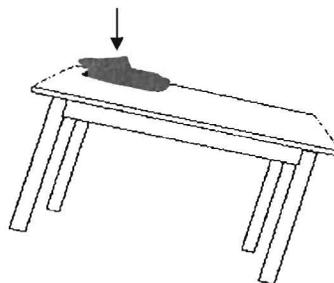
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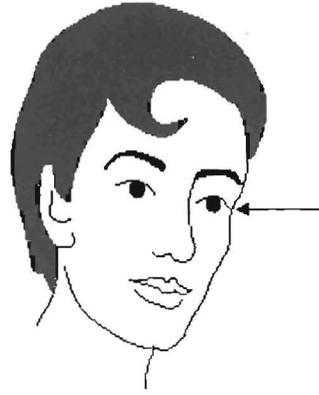
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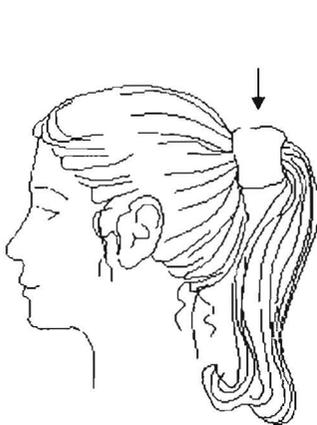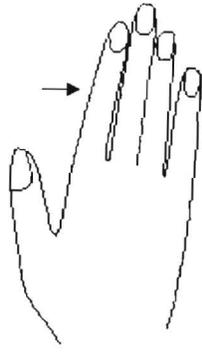
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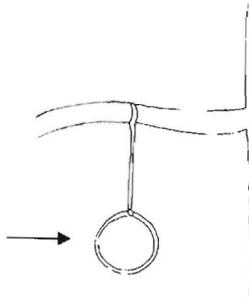
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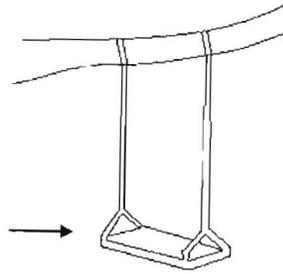
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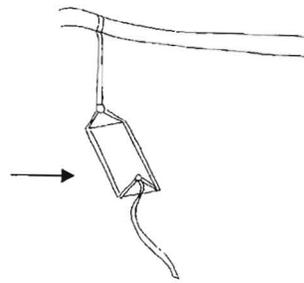
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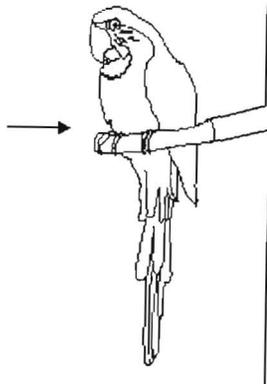
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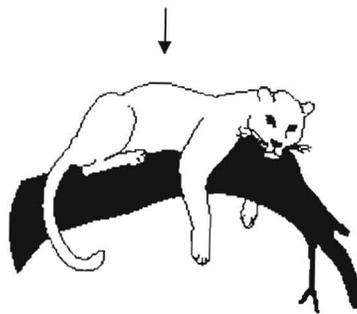
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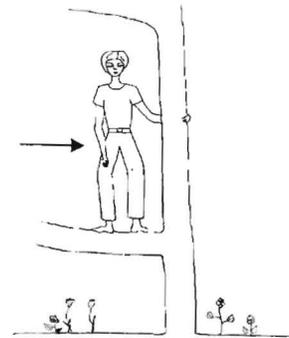
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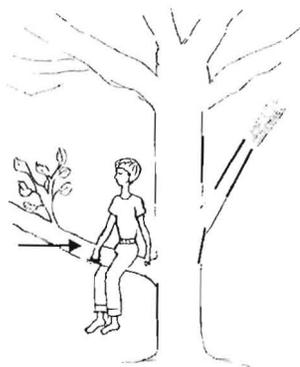
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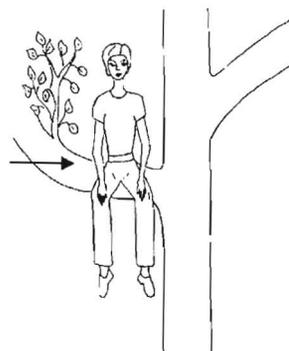
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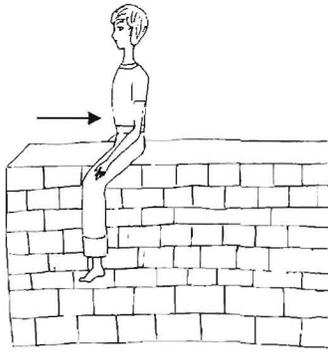
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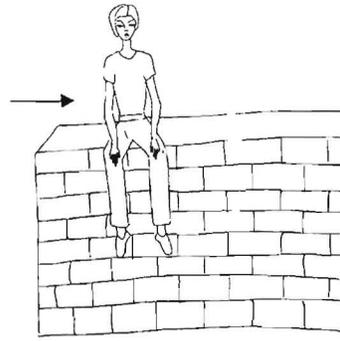
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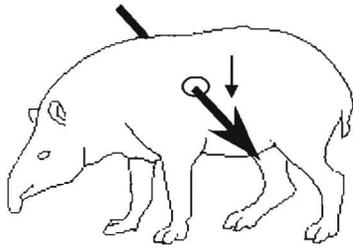
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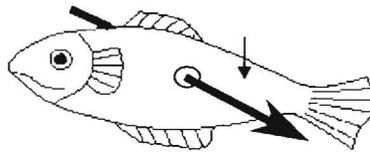
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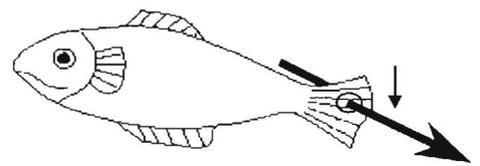
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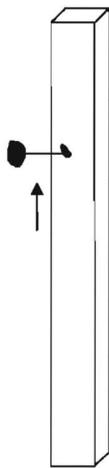
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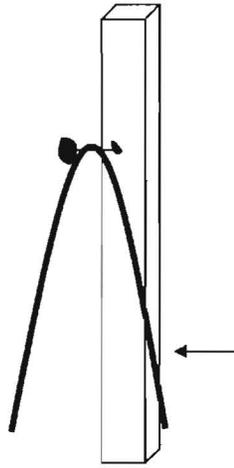
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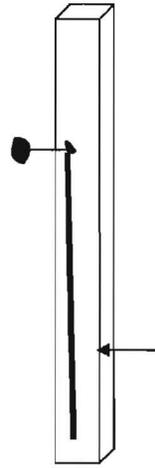
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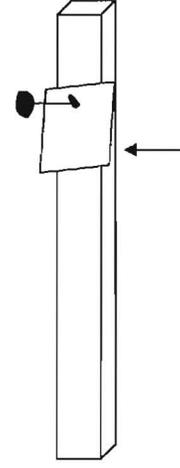
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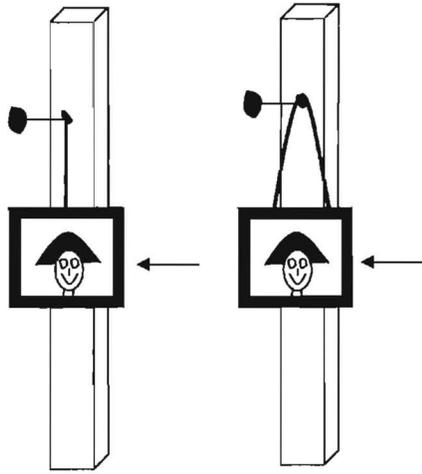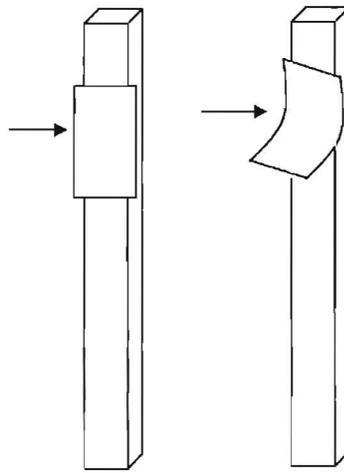
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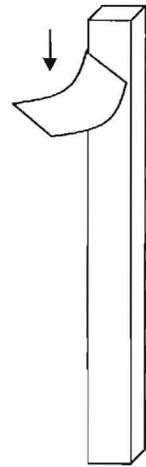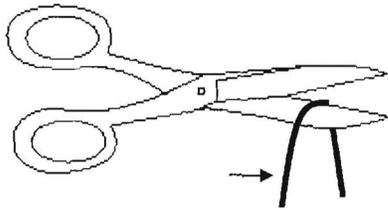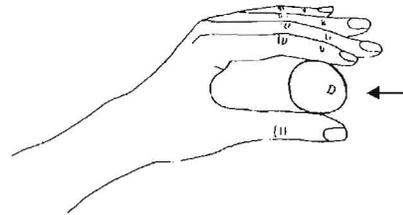
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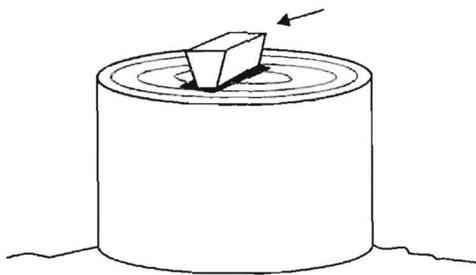
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TOPOLOGICAL RELATIONS: **QUESTIONNAIRE**

- **Relevant Project: space**
- **Nature of task: elicitation via questionnaire.**
- **Priority:** HIGH
- **Basic nature of the task.** This is basically an exploratory task, in which a number of possibilities are mentioned in the form of questions. The idea is to *explore the means deployed by a given language to express the meanings associated with English complex TRMs* (the language for which we have most information so far). If there are any complex TRMs without English equivalents (e.g. Tiriyó *pato* 'blocking from view', *rato* 'forming a pair with', also: 'in parallel to'), these should also be noted down.
- **Motivation.** The basic idea behind this preliminary task is to collect as much data as possible on complex TRMs, so as to have a better idea of the semantic range that they cover. Up until now, as far as we know, these notions have never been compared to each other in the literature, despite the existence of papers on individual terms (*over, across, through*, German *durch*, etc.).

   As background, consider the following classification of TRMs in Hawkins 1993:

   (a) *Point-like TRMs.* These are locatives which specify the relation between Figure and Ground without assuming (but also, of course, without necessarily excluding) any specific dimensionality. Figure and Ground can be represented as 'points'. E.g. English *at*; also 'general locatives', like e.g. Spanish *en*.

   (b) *Simple TRMs.* These are TRMs which roughly treat the Figure as a dimensionless point (or better, as an element whose dimensionality is not important) with respect to a Ground which has a higher level of topological/geometrical complexity than the Figure. This is the realm of the 'Bow-Ped' pictures: English *in, on*, etc.

   (c) *Dimentionally Complex TRMs.* These are TRMs which ascribe a higher degree of topological/geometrical complexity to the Figure (and correspondingly also to the Ground): the Figure has to have 'length' (e.g. English *across₁*, as in *the rope across the table*), or certain configurations (e.g. Tiriyó *awëe* 'straddling').

   (d) *Relationally Complex TRMs.* These are the TRMs which imply relations that are more complicated than simple location with respect to a Ground: e.g. multiple Grounds (Engl. *between, among*), parallelism/perpendicularity and/or blocking (Tiriyó *pato* 'blocking from view', 'being an obstacle', *rato* 'parallel to'; English *across₂*, as in *the room across the hall*, is also here.).

   For the first two groups, the TRM may specify *coincidence* (i.e. the Figure is located 'at' the Ground), or *separation* (i.e. the Figure is located at some distance from the Ground; this is the real of the *vicinity* TRMs like English *close to, by, next*, etc.). The table below gives a few English examples of typical TRMs in these categories.

Relation Type	Point-like	Simple	D-Complex	R-Complex
Coincidence	*at*	*in, on*	*across₁*	—
Separation	*near, by*	*to the left of*	—	*between, across₂*

- **How to run.** The questionnaire is divided in sections, each based on an English complex TRM for which corresponding elements in the target language are to be elicited. A few sentences are given for translation; they can be used as a springboard towards further elicitation, if it turns out that a particular notion is richer than expected. In principle, the researcher must get at least a translation of the example sentences, and, if possible and/or interesting, further sentences with the same TRM, for each of the target meanings.

   For many of the complex TRMs in English (e.g. *along, across*, etc.), usage in *motion* contexts is possible and indeed more frequent than usage in static situations (*I went across the park / along the road*). Is that also so in your language?

THE QUESTIONNAIRE

across / opposite. There is both a 'coincidence' (2) and a 'separation' (1) across -- are they distinct in your language?

1. the room is across the hall / across the plaza.
2. the rope is across the table
3. there is a tree across the path
4. the church is opposite the chief's house

against. Is there (necessarily) a 'supporting' force from the Ground on the Figure (4-5)?

5. the broom/stick/pencil is against the wall
6. the trash can/table is against the wall.
7. I am / John is leaning against the wall.

along. Is the Figure always 1D or more (6, 8) or can it be more point-like (7)? Is there 'implied motion'?

8. the village is along the river.
    meaning 1: the houses that form the village are spread along the river (cf. 10 below)
    meaning 2: if you follow the river, you will get to this village (the houses are not necessarily spread
            along the river; cf. 9 below)
9. John's house is along the road.
10. there are some trees along the road.

around. One single (long) Figure (9) vs. several figure (10), not necessarily forming a circle (11)

11. the rope is around the tree / the string is around the pencil
12. the people are around the table
13. there were lots of little seeds (all) around the house / There were a few seeds scattered around the house

below/under/beneath/underneath vs. above/over. Potentially relevant features, according to our
            preliminary results, are: *total* vs. *partial covering* (also *visible* vs. *invisible*);
            being on the same vertical axis vs. *being simply higher/lower than*; *being deep
            under* (mineral underneath the earth) vs. *being superficially under*.

14. the ball is under the table
15. the man is under the blanket ((a): *head and arms showing* vs. (b): *entirely under*)
16. the water/worm is under(neath) the earth
17. John's picture is below Mary's ((a): *at a lower level than it* vs. (b): *covered by it on the wall*))
18. the bird is (flying) above the house ((a): *right over, on the same vertical* vs. (b): *higher than*)
19. the tree branch is above the house ((a): *right over it* vs. (b): *at a higher level than, but not
            over*)
20. the kite/balloon is above the house ((a): *attached to the house by a rope* vs. (b): *just floating
            over it*)

between, among. Two Grounds vs. multiple Grounds / mass-like Grounds.
21. the stone is between the book and the knife
22. John's house is between the two rivers
23. John lives among the foreigners.

beyond, this side of (trans- and cislocatives).

24. John's house is beyond / this side of the river.
25. spirits live beyond / this side of the clouds

(in the) middle / center of (compare with *between, among*)

26. John is in the middle of the forest   (2-dimensional; Tiriyó *:roowë*)
27. there is a knot / an ant on the middle of the rope   (1-dimentional; Tiriyó *rawë*)

past, (via) (implied motion?)
28. his house is past the central square

through(out) (in addition to 'the arrow through the apple' from the Topological Relations picture series; is there 'implicit motion' here? Is the same TRM used for motion, as e.g. *he walked through mud*?)

29. he walked through the room / through(out) the forest
30. the road through the village/forest

Negatively defined TRMs. Are there any negative TRMs in your language? How about words for 'without' (e.g. he went without me; he cut the wood without the axe)? (Hixkaryana has an 'anti-comitative' adposition that means 'in the absence of NP'). How many words for 'negatively defined objects' are there in your language (e.g. 'hole', 'crack')?

out(side) of:. Some cases of 'reinterpreted Ground' (in X., 'window' stands for 'house').

31. the dog is out(side) (of) the kennel/house/cage
32. the elephant out(side) the window

off (of)
33. the book fell off the desk
34. the ball is off the grass

Proximity TRMs. Here there is no elicitation proposal yet. How many terms are there in this area, for your language? (Cf. English *by, near, next to, close to, in the vicinity of*, etc.; also opposites like *far (from), (far) away (from)*). Some possibly significant further variables are listed here; does any apply to the terms in your language?

— degree of proximity, relative to size ('right next to / almost touching' vs. 'in the general vicinity')
— proximity to different part of the Ground ('near side', 'near extremity', 'near center', etc.)
— Figure is static vs. Figure is moving
— presence of a third object between Figure and Ground (e.g. in English, *John is next to Peter* implies that there is nobody between John and Peter, while *John is near Peter / close to Peter* does not)
— possibility of use in metaphorical senses (e.g. English *close* in *John is close to Peter* can mean 'emotional proximity', whereas *near* or *next to* cannot; cf. also Vandeloise's notes on French *proche de* and *près de*).

Further complex TRMs: how does your language deal with alignment? (This stick/hammock/pen is parallel / perpendicular to that one; these two sticks lie crosswise / cross each other). How about 'obstacle' and 'blocking from view'? (You are blocking-my-view of the game; get out of my way!). Any other terms in the same form class as the other TRMs that has spatial semantics?

Don't forget that your TRM's are very likely to also encode Intrinsic (and possibly Relative) **Frame of Reference** information. We don't develop these issues here, for which there is a developed typology – see Levinson (in press) *Space in language & Cognition*, Cambridge University Press.