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Melissa Bowerman's Topological Relations Pictures

1. Topological Paths

Stimulus Kit: Eliciting descriptions of caused and spontaneous motions involving topological Paths (IN, OUT, ON, TOGETHER, APART, OPEN, CLOSE, etc.) (Also discussed to some extent: UP, DOWN, ACROSS...) (See notes from May 13 for static topological relations.)

I. Background (Spontaneous vs. caused motion vs. static location)

Most existing studies of spatial terms (pre-CARG output), even the rare ones with some cross-linguistic perspective, have been based on languages of one type in Talmy's three-way typological split: those like English in which Manner or Cause is conflated with motion in the verb, and Path is expressed separately with pre- or postpositions, particles, case-endings, etc. Some consequences of the emphasis on languages of this type in previous analyses are these:

1) Since spatial meanings are so saliently expressed in Path morphemes (in, up, etc.), the role of VERBS in expressing spatial meanings has been neglected (with the exception of deictic verbs, and occasional nods toward the stand/sit/lie distinctions in Germanic languages).

2) Since Path morphemes are typically combined indiscriminately with both transitive and intransitive motion verbs (e.g., both go IN/OUT/UP and put IN/OUT/UP), Path is often seen as a meaning component that is independent of the status of a motion as spontaneous or caused. Thus, it is assumed that even when a language typically expresses Path meanings in the verb rather than with independent Path morphemes (the second kind of language in Talmy's typology), the Path meanings, though 'conflated with' or 'incorporated into' other meaning components in the verb, are 'the same' for both transitive and intransitive verbs (and 'the same' as the Path meanings in languages with separate Path morphemes). For example, French mettre 'put in' is assumed to be the direct transitive counterpart of entrer 'go in', and the Path meaning is assumed to be the same as that expressed by, say, English in.

3) The distinction between static position (X is IN Y) and motion to a goal (X goes IN(TO) Y; Z puts X IN(TO) Y), though less often overlooked entirely than the distinction between spontaneous and caused Paths, nevertheless tends to be neglected or minimized. For example, in studies of the acquisition of in, on, under, etc. in English, children are sometimes tested with static configurations ("Show me the X IN/ON/UNDER the cup") and sometimes with actions ("Put the X IN /ON/UNDER the cup"), with the implicit assumption that the meaning of the prepositions--and knowledge of the meaning--is independent of this distinction. Similarly, Jackendoff decomposes dynamic sentences like John went into the room into a dynamic and a static component, as suggested by John went to [in the room]--the 'in' (or 'on', etc.) notion is thus assumed to be 'the same' in both dynamic and static descriptions.

I won't comment further here on the neglect of verbs; it's obvious that they need more attention. With respect to (2), the distinction between caused and spontaneous motion: my impression, based on what I know so far about languages that conflate Path meanings in the verb, is that the correspondence between Path meanings in transitive and intransitive verbs is in fact often poor. In Korean, for example, Path meanings are equivalent only in the verb pairs for 'ascend' (intr.) and 'cause-ascend' (tr.), and for 'descend' and 'cause-descend'. It is not incidental that for these pairs, the transitive form shares the verb root with its intransitive counterpart, adding only a causative suffiix: sharing a root facilitates sharing a meaning. For intransitive verbs meaning roughly 'enter', 'exit', 'pass', 'go-via', etc., there are no direct monomorphemic transitive or bi-morphemic causativized counterparts: apparently when roots aren't shared, there's nothing to bring the meanings into correspondence with each other, or to hold them there.

It looks to me as if there is better agreement among languages about what Path meanings should be encoded in intransitive verbs than in transitive verbs, though I don't know why this should be so. For example, many languages have intransitive Path verbs meaning roughly 'enter', 'exit', 'ascend', and 'descend';

however, the semantic categories carved out by transitive Path verbs are more idiosyncratic. It's clear that further exploration of these issues is going to require a lot more cross-linguistic information about categories of Path meanings for both spontaneous and caused motion. (Soonja Choi and I are currently comparing Korean and Japanese with these issues in mind.)

With respect to (3), the distinction between static and dynamic Path expressions: in many languages, the formal systems for encoding static and dynamic Path are far more distinct than in English and typologically similar languages. For example, in Korean, dynamic Path is encoded in the verb (only meanings of 'at/to', 'toward', and 'from' are separate morphemes--these are suffixed to (optional) nouns naming the Ground (source or goal) of the motion). Static Path is encoded with a set of locative nouns in constructions analogous to 'at the interior' (=in), 'at the upper region' (=on), etc. These nouns do not necessarily have much correspondence with the Path meanings picked out by verbs; static and dynamic location descriptions are thus both formally and semantically much more distinct than in English. (But note that there is another way in which the boundary between static and dynamic is blurred in Korean and a number of other languages: verbs and other elements from the dynamic system are often used to describe what in English would typically be characterized as a STATIC scene. Thus, the Korean counterpart for English "There's a fly in my cup!" would be "A fly HAS ENTERED my cup!").

The short conclusion from the above considerations is that in doing field work on spatial language, detailed separate attention has to be given to STATIC LOCATION vs. MOTION, and, within motion, to SPONTANEOUS MOTION vs. CAUSED MOTION. In an earlier set of notes I talked about static topological relationships. In what follows (II.), I'll talk about eliciting descriptions of caused motions involving topological relations (the domain of English put IN/ON/TOGETHER, take OUT/OFF/APART, open and close, clothing verbs in many languages, fastening and unfastening verbs, etc. There seem to be many interesting cross-linguistic differences in this big domain. I have explored the encoding of intransitive motions to a lesser extent--mostly in Korean and, more recently, and Japanese. Under III. I make just a few suggestions for elicitation in this domain as well. Brief remarks about (nontopological) motions UP, DOWN, etc., are included as well.

II. Caused motion.

A. General thoughts on elicitation.

1. Use of props.

It is quite easy to perform a caused motion with props--e.g., putting an apple into a bowl, putting the lid on a jar--and to get an informant to describe the action. The descriptions you get are likely to specify that the motion is caused--e.g., to include a transitive, causative verb like put--but it is important to pay close attention to this since otherwise informants may also slip intransitive descriptions in on you. For example, when Lourdes and I 'opened' various objects for a Tzotzil speaker, we expected to hear the equivalent of '(you) opened the box', but he typically instead said the equivalent of 'the box opened', an important difference which we did not, however, immediately pick up on. The actions COULD be described transitively in Tzotzil, and it is not clear whether there was some principled reason why he did not do so.[1] To be able to

[1] Languages do typically allow certain caused actions to be described as if they were spontaneous--i.e., for a clear agent to be omitted from the perspective: cf. English "Where does this GO?" (trying to fit a piece into a jigsaw puzzle); "Oh, this messed up!" (making a mistake in drawing); "The door OPENED and two men came in" (as seen from inside a restaurant"), but note *"The door OPENED and two men went in" (as seen from outside the restaurant; this last example is from Fillmore). Where this is and isn't possible, or typical, varies

tell whether a description is transitive or not you need to insure that the informant doesn't just begin, after a number of actions, to give you nothing but a verb, like "open", "close", "put in"--in many languages, the transitivity status of bare verbs can't be evaluated.

You also need to hold out for a fairly full sentence for another reason: so you can determine what the thematic roles are of a verb's (direct and oblique) objects. For example, if you put clothing into a bag and the informant says "you BLICKED it", you know the description is transitive but you don't know whether BLICK specifies what you did to the clothing (e.g., "you inserted it into the bag") or what you did to the bag ("you filled it with clothing"). Some verbs allow multiple perspectives: c.f. "you stuffed clothing into the bag" AND "you stuffed the bag with clothing", so check whether such alternations are possible for the verbs you elicit.

A few props that would be useful to take along:

1. Stacking rings and pole. (Encircling and 'putting through' relations.)
2. A few Pop-beads and Lego pieces. (Attachments of different kinds; can also use to test whether 'symmetry' is important--cf. English 'put together/take apart' vs. 'put on/take off', depending on the overall configuration.)
3. A flat wooden puzzle with pieces that fit into niches. (You can get small rectangular ones (one row of about 4-5 pieces) meant for very young children. 'Containment' of a nonprototypical kind (flat, tight-fit)).
5. Something sticky: tape, bandaids, stickers. (Adhesion of flat object in various orientations.)
6. Pieces of modeling clay (plasticine). (Adhesion of nonflat object; also useful in matching games (see 2 below).
7. Magnets. (Nonsticky adhesion.)
8. Nesting cups. (Limit bulkiness by taking only a few of the smallest ones. Tight-fit containment.)
9. Small beads, needle and string. (Threading, encirclement.)
9. Use your other equipment creatively for interestingly different Figures and Grounds: flashlight, toothbrush, tape-dispenser, stapler, videocamera, scissors, coins, toothpaste (a nice smeary substance), water (for Ground, and also droplets and puddles as Figures), etc.

2. Matching game.

Lourdes and I used this technique a bit with 2 Tzotzil speakers: we would model an action to one speaker (e.g., poke pole through ring from the side, or put ring over pole from the side, or separate two popbeads), and then that speaker would instruct the other speaker, who hasn't seen the action, how to perform the same action. I think this technique is pretty good, and I believe it would pull for transitive descriptions of caused events more consistently than does the technique of describing an action that has already taken place.

3. Video presentation.

It would probably be useful to be able to show video tapes with short clips of actions, both caused and spontaneous. But--as I suggested for the pictures of static spatial configurations (see other handout)--I think it would be wise to use each clip to stimulate thinking about a particular FAMILY of actions ("use type") (e.g., the insertion of a long thin thing into a tight-fitting container) which could then be further explored using 3-D props of various kinds.

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across languages (Talmy has written something about this), and is something that needs more study. For example, would an English speaker ever say "The box opened" as a description of what happened after I open a box?

B. Some general considerations.

For topological caused motion it is important to explore the division of labor between the various elements in the sentence. For example, is most of the work of expressing Path done in a locative marker, or in the verb, or both? (cf. English put in/on/ together, take out/off/apart, where the verb stays constant across a number of topological differences, vs. Spanish meter, poner, juntar...).

When languages make heavy use of verbs that are not very sensitive to Path, these verbs can still mark important spatial distinctions. Put and take, which are quite understudied, mark complex contrasts involving deixis, 'accompaniment' by agent, etc. Non-path-sensitive verbs in German and Dutch (English to a lesser degree) are sensitive to the dimensionality and orientation of the Figure regardless of whether it ends up 'in', 'on', 'around' (etc.) the Ground. (For example, Dutch leggen 'lay' for flat Figures, zetten 'set' for upright objects with a base...) These verbs are typically the causatives of positional verbs (liggen 'lie', zitten 'sit') used in describing static locative relationships. Although many languages probably have such verbs, what aspects of the Figure are critical for selecting the right verb can vary, even among languages as closely related as Dutch and German.

Even languages with multi-purpose non-Path-sensitive verbs usually have a number of more specialized "Path-like" verbs that are used in conjunction with Path markers--cf. English hang, stick, attach, hook, peel, button... It would be interesting to know how much correspondence there is across languages in what categories of actions are pulled out for special attention like this.

B. Some families of caused topological motion.

1. Putting into/taking out of containment.

Does the language routinely distinguish 'putting into/taking out of containment' from 'putting onto/taking off a surface?' (e.g., Engl. put in/on; take out/off' Span. meter/poner; sacar/quitar). Assuming there is SOME kind of distinction, is 'containment' really the right characterization? (In Finnish, the case endings that are typically translated as 'in' and 'into' are applied to many relations that involve no containment, like putting a sticker on a surface (see Bowerman chapter in Gumperz & Levinson book). The critical thing for the 'in' morphemes is something like 'being *intimately connected to the Ground*' -- prototypically inside it, but also tightly attached to its outside surface or intermeshed with it.)

'(Put) in' in English, and its counterpart in German and Dutch, is very tolerant, applying indiscriminately across all kinds of distinctions other languages make. Here are some possibly relevant distinctions. (Depending on the language, the distinction might be relevant only to caused motion (like the Korean distinction in (a)), or it might be relevant to both spontaneous and caused motion (like the distinctions in (b) and (c)).)

a. Putting into/out of 'tight' vs. 'loose' containers.

Korean often distinguishes between putting things into 'tight' vs. 'loose' containers (and taking them out) (e.g. apple into bowl, book into box or bag, vs. glasses into glasses case, sword into sheath, videocassette into case. Both verbs can also be used for situations that would not qualify for 'in' in English: e.g., putting (tight-fitting/loose-fitting) rings over poles (see (d) below); tight-fitting containment also falls together with attachments of other kinds, like putting two Lego pieces together.

b. Identity of the container.

Talmy notes that Atsugewi has many verb suffixes that encode motion into or (or sometimes either into or onto) Grounds of various sorts, such as fire,

liquid, something raised off the ground. Putting into liquids may have separate encoding in many languages. Korean has a verb used for loading things into vehicles; also one for putting multiple objects into a container you can carry, like a bowl or basket.

c. Orientation of the opening.

Swedish, which in many respects is similar to English, uses 2 different verb particles--in and i--for '(put/go) IN'; these distribute differently in ways I'm still trying to figure out. (The preposition is i 'in' with either particle.) One important distinction is whether the Figure enters the Ground SIDEWAYS or from ABOVE (sideways: 'jag gick IN i rummet' (=I went IN in the room); 'jag satte IN steken i ugnen' (=I put the steak in the oven); 'lagga IN en karta i handskfacket' (=lay a map in the glove compartment)) above: 'jag steg I vattnet' (=I stepped in the water); 'jag la I buljonstar-ningen i soppan' (=I put the bouillon cube in the soup)). (The particle i also has something to do with 'putting into operative position', e.g., lightbulb into socket from any orientation.)

d. Putting things into encirclement ('into', 'through').

Many languages seem to use the same expression -- usually one that most prototypically has to do with 'containment' -- not only for causing a Figure to enter an encircling Ground (e.g., pencil through a ring, pole of stacking toy through stacking rings) but also for causing an encircling Figure to go on/over a contained Ground (ring on pencil, etc.).

Try not only fairly 'open' encirclers, like rings, but also closed ones like beads into which a thread is inserted, and try everything with both encircler and encirclee as the Figure and as the Ground.

e. Piercing.

Piercing may or may not work like 'encirclement'. A number of languages seem to have verbs for forceful poking or sticking of something into a resisting medium.

Important: find out if the expression is ONLY usable for poking an object INTO an object (like apple) or medium (like dirt), or could also be used for fixing the 'poking' object in a 'noncontained' way -- e.g., putting a hollow flagpole onto a projecting peg. (This is essentially the same question as applies to d.)

f. Properties of the Figure.

Languages often distinguish solid vs. liquid/mass(-like) (e.g., peas) Figures (e.g., 'put in' vs. 'pour in' in English). And as s noted, Korean has a verb for putting multiple objects into a carrying-container.

Also, actions involving long, thin Figures in tight places (e.g., sword/sheathe, nail/wall, splinter/hand) often seem to take a special verb. So be sure to find out whether the verb you elicit for, e.g., taking a nail out of a wall could be used for, e.g., taking a piece out of a puzzle.

g. Taking things 'out' in general:

Keep distinctions (a)-(f) in mind, but languages typically seem not to make as fine distinctions for separation as joining.

2. Putting things onto surfaces and taking them off. Expressions can differ depending on whether:

a. The Ground is the floor or ground vs. a raised surface.

b. The Ground is horizontal or vertical.

c. The Ground is a canonical place to put things.

d. The Figure is in loose contact with the Ground (e.g., cup on table) or adheres to it. In the case of adherence, see if the orientation of the surface matters, and see if it matters whether the Figure is flat or projects, or is a "sticky" vs. a "smeary" vs. a "magnetically attracted" entity.

3. Clothing. Putting on or taking off clothing may fall together with other topological actions (as in English and Dutch), or it may constitute a separate domain (clothing verbs, like in Korean and Japanese). Either way, languages may distinguish between putting clothes on various body parts, and they may make these distinctions in somewhat different ways. Test at least hats, shoes and socks, dresses and coats, pants, scarfs around head, neck, shoulders, belt around waist. Also test accessories like bracelet, watch, necklace, earrings, broach or pin, eyeglasses. (Accessories may be treated like items in 4.)

4. Joining, attachment, tying, pinning, hooking, fastening (and the corresponding separations).

a. Legos, Pop-beads. Find out whether 'symmetry' is important. E.g., is 'putting two Pop-beads together' (two similar objects, both moving) encoded in the same way as 'putting a Pop bead onto a pre-existing string of several Pop-beads'? (one object stationary, the other moving). (Ditto for 'apart/off'.)

b. Buttons, snaps, buckles, hook-and-eye.

c. Screw or snap lids on jars, tubes.

d. Tying things to other things, e.g., a string onto a pull-toy, a rope onto a dog's collar.

e. Attaching something to a base--e.g., Tinker-Toy stick into a block; feather into hatband. (Is it 'on'? 'in'? 'attached to'?)

5. Peeling.

Peeling fruit, separating two slices of cheese, peeling tape off a table, taking backing paper off a bandaid.

6. Putting X around/over Y, and taking off. Rings on pole, cap on pen, ring or toilet paper roll on pencil, rubber band around box or cup, pillowcase on pillow, rope around chair legs. See whether there is a difference between when one end of Figure is closed ("capping") and when both ends are open. See whether the same or different terms are used for rigid encirclers (e.g., rings) and 'wrapping' encirclers (e.g., rope, hose).

7. Hanging. Try things on hooks vs. slung over ropes or chairbacks vs. directly attached (e.g., apple on tree; light fixture on cord that comes out of ceiling). (Need to know static as well as dynamic here.) Is a word that seems to mean 'hang something on a hook' also usable for 'hooking' more generally, without any hanging (e.g., hooking two paperclips together)?

8. Opening and closing.

Many languages break this domain down more finely than English. Some distinctions to try: Containers with loose lid vs. hinged lid vs. sliding drawer

(like matchbox or box of staples). Opening and closing legs of scissors or tongs, hinged clothes pin, safety pin, your own legs and arms. Opening a folded piece of paper or cloth ("spreading"). Opening and closing eyes, mouth, hand. Opening and closing shutters, double doors, books, with both sides vs. one side moving. Actions involving pan lids, jar lids, tube lids, sliding doors or lids. Actions with envelopes, bags, zippers. Open/close coat. Any of these terms usable for joining/separating Pop-beads or Lego pieces?

9. Covering.

Putting on lids. Putting tablecloth on table (2-d spreading). Covering eyes with a hand or cloth.

10. Caused motion UP and DOWN. These notions are not topological, of course, but might profitably be looked at at the same time as the topological actions. Ask about picking objects up off floor, off table, and putting them down. Putting objects up on a shelf and taking them down. Moving something like a picture held against the wall up or down a bit. Picking up and carrying a child, putting down.

III. Spontaneous motion.

I guess one would want to combine looking at topological spontaneous motions with looking at spontaneous motion along other Paths, like UP, DOWN, PAST, and ACROSS. I have not done systematic elicitation in this domain. But I assume one could use one's own body to model actions for description. Manipulations with objects will often work, if the agent is sort of backgrounded (e.g., ask "what's the bead doing?" as you flick it to start it rolling into/out of box, or down an inclined plane) (See II.A.1. above, and footnote 1.) Videos would be good too, of course.

-Going in and out of buildings/rooms, containers with opening to the side.

-Getting in and out of vehicles, tubs, containers with opening upright. (Note the difference in the verb in English: get/*go into/out of the car/tub. 'Get' is needed when there's some obstacle to movement, like a side or a step.)

-Going through things, e.g., a tunnel. (Might be able to elicit this by rolling a bead through a toilet paper roll.)

-Moving 'onto' something: e.g., lying down on a blanket, a bead rolling onto a piece of paper.

-Climbing on and off a stool or table, going up and down stairs.

-Something falling on a flat surface ('topple over') vs. off a table. (Two different verbs needed in Korean.)

-Passing something.

-Going to point X and returning.

-Crossing something, e.g., a road.