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Contact

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PUT PROJECT:
THE CROSS-LINGUISTIC ENCODING OF PLACEMENT EVENTS
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Projects	Event Representation, Space
Task	Elicited descriptions of short video-clips.
Goal of subproject	To explore cross-linguistic universality and variability in the semantic categorization of ‘placement events’ (e.g., ‘putting a cup on the table’).

Background

How similar are the event concepts encoded by different languages? In the cognitivist climate of the last thirty years it has often been assumed that event categorization – at least for such seemingly basic human experiences as ‘giving’, ‘putting’, ‘hitting’, ‘throwing’, and the like – is more or less universal, due to correlations among features of events in the “real world” and probably also to biases in human perception and cognition. Within this framework, the task of verb learning is seen as a process of matching words to event concepts that the child has already formulated on a nonlinguistic basis (e.g., Gleitman, 1990). Previous research in the Space and Event Representation Projects has challenged this view, showing (a) striking cross-linguistic differences in the categorization of events to do with topological relations, ‘coming and going’, frames of reference, and ‘cutting and breaking’, and (b) very early acquisition of language-specific event categories. But this research also shows that variation in linguistic event categorization is not unconstrained; e.g., languages partition the domain of ‘cutting and breaking’ into different numbers of categories, and they position category boundaries differently, but these differences are played out within a shared semantic space organized in terms of a few cross-linguistically important dimensions of contrast.

So far, few event domains have been investigated in any detail. The PUT project extends the systematic cross-linguistic exploration of event categorization to a new domain, that of placement events (putting things in places and removing them from places).¹ This domain is often the subject of universalist claims. For example, English *put* is typically described as a “light verb” with relatively little meaning beyond its schematic sense of “caused motion/change of location”. Its “lightness” leads Goldberg et al. (in press) to posit that *put* is the verb that best represents the schematic meaning of the English “caused motion” construction (“X CAUSES Y TO MOVE Z”). Pinker – who in general takes a cross-linguistically sophisticated approach to the acquisition of verb meaning – nonetheless mentions *put* among a small set of verbs that he believes children learn by simply mapping them to nonlinguistic event concepts (1989:254). The meaning of *put* seems cognitively obvious to many. But is it? This project will examine the degree to which languages converge on similar categories in this domain.

Rather than define the domain of study in very general terms, such as “caused motion” or “caused change of location”, we take as our starting point the event type that we think is widely assumed to be the prototype of a ‘putting’ event: *deliberately placing an object somewhere under manual control*. Examples include putting a cup on a table or putting an apple in a bowl. The recent discovery of manual grasp-related mirror neurons in the

prefrontal cortex of monkeys and humans suggests a possible neurological basis for the centrality of such events (Rizzolatti, Fogassi, & Gallese, 2001).

How generously do languages construe such basic acts of placement? To what extent do they agree on whether and how to distinguish among placements of different kinds? So far, systematic cross-linguistic attention to the classification of placement events at MPI and in the literature more generally has focused on a limited set of distinctions; e.g., placements along different paths (e.g., Spanish *poner* ‘put on’ vs. *meter* ‘put in’), placements of objects with different shapes and/or resulting “postures” (e.g., Swedish *sätta* ‘set/make sit’, *ställa* ‘stand/make stand’, *lägga* ‘lay’), and placement of clothing onto different body parts (e.g., Korean *ssuta* ‘put clothing on head’, *ipta* ‘... on trunk’, *sinta* ‘...on feet’).

The PUT project will include attention to these factors, but also examine the role of other factors that have not yet been systematically explored across languages, especially those to do with the nature of the causation. For example, both putting a cup on a table and taking a cup off a table involve a manual grasp. Do languages typically distinguish between movement “out of” vs. “into” this grasp? (cf., English *put* vs. *take/pick up*). Does it matter whether the grasp is manual or performed with e.g. the mouth or a tool? (English *put* and *take/pick up* are indifferent to this). Whether the agent’s control is maintained throughout a “putting” event or is terminated before the Figure reaches the goal? (cf., English *put* vs. *drop* or *dump*). Whether the placement is intentional or accidental? (cf., Swedish *släppa* ‘drop intentionally’ vs. *tappa* ‘drop unintentionally’). Whether the goal is animate or inanimate? (cf. English *give* vs. *put*). Whether the agent moves the Figure simply by hand/arm extension, or accompanies the Figure to its new location? (cf., English *put out of the house* vs. *take/bring out of the house*)? These and other features are varied in the elicitation clips. (The examples given in the last two paragraphs involve single verbs, but verb compounds, other parts of speech, and constructional meanings are also relevant to the PUT project.)

Task

1. Materials

(a) The task consists of 63 short video-clips to be described (plus three warm-up clips). There are three order-versions of the task; these sequence the clips differently so as to minimize order effects. Each speaker is tested using only one version. The three versions are located in separate folders, with each folder containing both all the clips listed separately in the right order for that version and a Powerpoint presentation that incorporates all the clips in the right order.

The Powerpoint version is very convenient for repeating a clip or navigating among the clips. You should be aware that it loads rather slowly when you call it up, since it has to lay links to the separately-listed clips in the same folder. Be patient. To run the presentation as a show, or to see the thumbnail sketches of the clips, the Powerpoint menu bar at the top of the screen must be blue. Sometimes, depending on the laptop, this bar does not turn blue automatically. If it is grey and you can’t start the show, minimize the screen, then maximize it again; now the bar should be blue and things should work. If you still have trouble, the clips can also be run outside of Powerpoint by simply clicking on them one by one, in the order they are listed in the folder.

Please try to test the clips on your laptop before you go to the field!

(b) Included in the Field manual (p 19-24) there is a list of the clips (number in order of presentation and a brief description) in their order of presentation for each of the three versions. If you run a speaker with a given version without Powerpoint (i.e., by calling up clips one by one), use the appropriate list to keep track of which clips you have already shown (check them off in the columns provided); this will minimize missing data.

2. Requirements

Laptop with Media Player (for Windows) or Quicktime (for Mac). Powerpoint is handy but not essential. At present, the Powerpoint presentation does not run on Mac laptops, although if there is some demand we can create versions that do. The video-clips come with sound, so turn up the volume on your laptop. Record responses on audio- or video-tape with an external mike.

3. Number of speakers

TEN would be ideal, both to put you on firm ground for a focused analysis of the encoding of placement events in your own field language and for purposes of cross-linguistic comparisons. The PUT task is much shorter than e.g., Cut & Break, ECOM, or Staged Events; each clip is only 3-4 seconds long, and simply getting a description of all the clips will take less than half an hour per speaker. It would be helpful to do a little extra probing with a few speakers, but this is not required. If you can't manage 10 speakers, e.g., because the language is endangered or you simply don't have time, data from any number, even one, will be welcome.

4. Procedure

(1) Audio- or video-tape each elicitation session. (Audio is fine, but video would be useful if you might be interested in gestures accompanying speech about placements, cf. Gullberg, *MPI Annual Report 2003*: 115.)

(2) Rotate through the three order versions of the task as you test each successive speaker.

(3) You and the speaker sit together in front of a laptop. Explain to the speaker that she (or he, of course) will see scenes in which someone does something, and that she should describe what this person did. You then prompt her after each clip, saying e.g., "What did the man/woman do?"; you can discontinue these prompts when they are no longer necessary. The first three clips are warm-up items to allow you and the speaker to practice the procedure.

(4) You can repeat a clip as many times as you need to if the speaker wants to see it again. You can also go back to a previous clip. In Powerpoint, repeat by simply clicking on the screen again, and go forward/backward by using the scroll button on the mouse or the PgDn/PgUp buttons on the keyboard.

(5) If the speaker does not recognize the object being placed (e.g., a highlighter pen, a poorly-visible stone, a cucumber) or the ground object (e.g., a shelf, a canvas case), you can explain, or suggest a similarly-shaped alternative that is more familiar.

(6) The goal is to get descriptions of *the placement action the person in the video-clip performs* (this is the “target event” specified in the clip lists). If the speaker simply describes the resultant state – saying, for example, “the cup is on the table” or “the cup stands” after seeing someone put a cup on the table – you should prompt her to produce a construction that includes mention of the agent, using questions such as “What did the man/woman do?”, “How did the cup get there?” or “What happened?”

For some clips, speakers may neglect the target placement event by trying to capture the agent’s more global intentions; e.g., “she’s HIDING / LOOKING FOR something”, “he’s FINDING something” (for the clips showing putting hands and objects in and out of a hole in a tree), “she’s CLEANING UP” (for picking a magazine up off the floor); “she’s FIXING UP her friend’s hair” (for putting a flower in the hair). In this case, probe immediately for a description of the intended placement event per se.

Some clips may not lend themselves to description as an agentive placement action; speakers may prefer intransitive event descriptions like “The book fell” or multi-clause constructions like “She bumped into the bucket, it fell over, and stuff fell out”. This is OK. If you do further semantic probing (see 8-9 below), you could explore whether the agent’s contribution to the scene could be described in some (other) way as well.

(7) The final three clips of each order-version of the task are designed for a special purpose: to determine whether the most basic placement verbs of your field language – if at least a few of these can be identified – allow mention of *both* Source *and* Goal in the same clause.

Note that English *put* and *take* (in its nonaccompaniment sense) do not: **Mary PUT the book from the table onto the chair*; **Mary TOOK the book from the table onto the chair* (only possible if Mary climbs on the chair too). (See also Jackendoff 1990:79-80 on constraints on the PPs that can occur with *put*.) This restriction is interesting, since both Source and Goal *can* be mentioned together with the most basic intransitive motion verbs of English, such as *come* and *go*, and also with many other transitive verbs used in the caused motion construction: *Mary CAME/WENT from the table to the chair*; *Mary MOVED/SHOVED the book from the table onto the chair*.

We would like to be able to explore this potential constraint on core placement verbs in a broad cross-linguistic perspective (see note 2 for further motivation). Please be aware, then, of the special purpose of the last three clips, and probe enough to make sure that you know whether the major placement verbs of your language can occur with both Goal and Source, or only one of these. (If you are using Powerpoint, you will be reminded by a slide just before the clips appear, and if you are using separate clips, you will be reminded by a comment in the list of clips [included in the Field Manual] for that order-version.)

Further possible probing and elicitation

After carrying out the basic procedure (steps 1-7 above), you could collect further useful information with some probing. Data from one to three speakers would be sufficient. If you don’t have time, the data from steps 1-7 will still be useful.

- Semantics

(8) The domain of placement events is huge, and we cannot study everything with a limited set of clips. So in our crosslinguistic analyses of the data collected with this tool we would like to be able to compare the uses of the *MOST BASIC PLACEMENT VERBS* of a language, if one or more of these can be identified on grounds of frequency or semantic generality. For instance, for the Goal-oriented events we would be more interested in the extension of *put* in English – which clips this verb can and cannot be used for – than in all the myriads of manner verbs that could in principle be used in the “caused motion” construction (Goldberg 1995). For Dutch, we would want to be able to explore the uses of basic positional placement verbs like *zetten* ‘cause to sit/stand’, *leggen* ‘lay’, and *stoppen* ‘put/stuff in’.

So if your speakers tended to make fine-grained distinctions among the clips, e.g. using manner verbs such as ‘poke’, ‘push’, or ‘flip’, it would be helpful if you would probe – after the main elicitation, or in a separate session – to see whether some more basic placement verbs of your language (assuming that you can identify some) could also have been used felicitously for these same clips. This information will permit not only more thorough analyses of the semantics of the main placement verbs, but also of hierarchical structure in this domain; e.g., is “STUFFING a rag into a pipe” a way of “PUTTING a rag into a pipe”?

(9) Further information is of course desirable for *all* the verbs that speakers use to describe the target events in the video-clips. Try to determine, by probing and elicitation, what these verbs mean, and what other situations outside the task they can be used for. Keep in mind that some verbs may have other uses, perhaps more basic, that do not involve placement per se.

- Syntax

(10) It is important to know, for your language, how the information about a placement event is typically distributed across utterance constituents. Presumably you will be able to determine, from the clip descriptions you elicit, whether it is characteristically concentrated into a single transitive verb (e.g., Spanish *meter* ‘put in’), spread across the elements of a compound verb or a verb-particle construction (e.g., Japanese *tori-dasu* ‘take-cause.exit’ [take out]; Mandarin *na-chu-lai* ‘take-exit-come’ [take out]; English *put in*, *take out*), distributed across a more complex serial verb construction (e.g., Ewe *tsÓ X dé Y me* ‘take X put Y containing-region of’ [put X in Y]), and so on.

You could also probe for other constructions in which the *most basic placement verbs* (verb compounds, etc.) that turn up in your elicitations can appear, e.g. can they be used intransitively? Can they be used – with or without applicatives – in a double-object construction (‘put the table the cup’)? With a ‘with’ adjunct?

More specifically: is the syntactic treatment of the Figure (Theme) and the Ground (Goal, Source) constituents fixed or flexible? Some English verbs used for placement events undergo the locative alternation, as shown in (1)-(2). There is an accompanying meaning contrast to do with how completely the Ground argument is felt to be affected (more so in the “with/of” variants). But *put* and *take* are fixed: they require the Figure to be direct object and the Ground to be oblique object, as shown in (3)-(4).

- (1) Stuff a rag in the pipe. ~ Stuff the pipe with a rag.
- (2) Clear the dishes off the table. ~ Clear the table of dishes.
- (3) Put the cups on the table. ~ *Put the table with cups.
- (4) Take the cups off the table. ~ *Take the table of cups.

So semantic generality does not go paired with syntactic flexibility in this case (see also note 2). Is this true for the most basic placement verbs crosslinguistically?

Analysis

Coding. For your own purposes, you may want to make a complete transcription of everything the speaker said. For the group effort, which will encompass all the languages for which there are data, you will be asked to fill in, for each speaker, an Excel score sheet (to be provided in the fall of 2004). This asks for certain information about the speaker's response to each stimulus clip that could be garnered from your session tapes without transcribing everything. You will be asked to locate where in the response the speaker encoded the TARGET EVENT (the placement event for each clip, as specified in the clip list in the Field Manual), and to write down, in separate columns, the verb (or verb compound, serial verb construction, etc.), any accompanying particles or complement phrases, and a code for the overall construction pattern. If the speaker offered more than one description of the clip, you will be asked to give information about these other responses as well.

Analysis. The information you give us will be analyzed with appropriate multivariate statistics – e.g., correspondence analysis, cluster analysis, and loglinear analysis – in search of cross-linguistic similarities and differences in how speakers distinguish and group the clips through the verbs and/or constructions they use. Previous work within Event Representation on the Cut & Break project has given us experience in using these analyses, and shown that they lead to insights about the dimensions or features that are often used, across languages, to distinguish among events, as well as about the specific pattern adopted by each language within this shared semantic space. Depending on how much syntactic information we receive (cf. 7 and 10 above), we will also carry out cross-linguistic analyses of how the meaning of placement verbs is related to the syntactic treatment of their arguments.

Outcome

The main goal of the PUT project is to deepen our understanding of the semantic organization of placement events across languages. We hope to determine what kinds of distinctions and grouping principles can be important, how much cross-linguistic variation there is, and how the categorization of placement events is constrained (see step 7 under 'Procedure' and notes 2 and 3 for some specific questions to be addressed). Data permitting, we will also explore whether there are uniform cross-linguistic patterns in how verb meaning is related to the syntactic treatment of the verb's arguments. A publication strategy similar to the one underway for the Cut & Break project is envisioned: the researchers listed above as responsible for this project will undertake the cross-linguistic comparisons, to be written up as one or more chapters or articles, and they will organize an edited group publication that will include such a chapter, and to

which individual researchers are encouraged to contribute chapters on the encoding of placement events in their own field languages.

Notes

1. Previous MPI work in the Space and Event Representation Projects that paves the way for the PUT project includes (1) Bowerman and colleagues on putting objects ‘on’, ‘in’, and ‘around’ in child and adult English, Korean, Dutch, and Tzotzil (Choi & Bowerman 1991; Bowerman & Choi 2001; Bowerman, de León, & Choi 1995); (2) Bowerman, Brown, Eisenbeiss, Narasimhan, and Slobin (2002) on how children learn to talk about ‘putting things in places’ in typologically different languages; (3) Hellwig and Lüpke’s preliminary crosslinguistic work on placement events, focusing on contrasts in the position/orientation (sitting, standing, lying, etc.) of the moved Figure (the “caused positional” stimulus set was developed for this project; a limited amount of data collected with it awaits analysis); (4) Gullberg’s work (*MPI Annual Report 2003*) on language and co-speech gestures in the encoding of placement events among adult native speakers of Dutch and French, and among adult Dutch advanced learners of French; and (5) Gullberg and Narasimhan’s work (*MPI Annual Report 2003*) on language and co-speech gestures in the encoding of placement events by child and adult speakers of Tamil and Dutch.

2. The behavior of intransitive motion verbs with Source and Goal arguments has been studied cross-linguistically in the Event Representation Project by Bohnemeyer (1997). He argues that languages like English treat ‘departure from a Source’ and ‘arrival at a Goal’ as possible points on a continuous trajectory picked out by a verb like *come* or *go*, so both can be mentioned in the same clause with the verb. Yucatek Mayan, in contrast, treats them as punctual state changes, so they each require their own verb (as in ‘Mary LEFT the table and ARRIVED at the chair’). English *put* and *take* seem to behave like Yucatek intransitive motion verbs: if the speaker wants to use *put* or *take* in a description that includes both Source and Goal, he must shift verbs: *Mary TOOK the book from the table and PUT it on the chair*. In striking contrast, less basic transitive verbs used in the caused-motion construction of English *do* allow mention of both Source and Goal in the same clause, as in *Mary MOVED/ THREW/ SHOVED/ SLIPPED the book from the table onto the chair*. Intriguingly, the basic Dutch “positional” placement verbs (e.g., *zetten*, ‘make sit/stand’, *leggen* ‘lay’) behave like these latter verbs of English, not like *put* and *take*: the sentences *Mary ZETTE het kopje (LEGDE het boek) van de tafel op de stoel* ‘Mary set the cup (lay the book) from the table on(to) the chair’ are considered acceptable by most speakers.

3. One semantic question to be investigated with the information gleaned in procedural steps 1-7 is whether Goal-oriented (“putting”) and Source-oriented (“taking”) verbs typically mark the same set of distinctions, or whether there is an asymmetry. (This is why many of the events shown in the clips come in pairs, such as “putting head into bucket” and “taking head out of bucket”.) There are several reasons to predict that if there is a systematic asymmetry, it will be in favor of a richer lexicalization of distinctions in Goal- than in Source-oriented verbs.

In connectionist modeling of the cross-linguistic acquisition of closed-class spatial morphemes, Regier (1996) has proposed the existence of an “endpoint configuration constraint”. According to this constraint, learners orient toward static configurational features that are visible at the *end* of an event (e.g., Figure ending up “in” or “on” something). In contrast, they have trouble noticing the relevance for a word of features

visible only at the *beginning* of the event (e.g., Figure starts out “in” or “on” something but then is removed). Regier suggests that learning forms like *out* and *off* (relevant configuration not visible at endpoint) depends on having learned forms like *in* and *on* (configuration visible at endpoint), which sensitize the learner to the relevant configurations. Extending Regier’s logic to placement verbs, this constraint should make it easier for children to learn the meanings of Goal-oriented verbs like Spanish *meter* ‘put in’ and *poner* ‘put on’ than of Source-oriented verbs like *sacar* ‘take out’ and *quitar* ‘take off’. It should also constrain Source-oriented verbs to make either the same configurational distinctions as Goal-oriented verbs or a subset of these, but never additional distinctions, since children would be unable to learn such verbs.

Supporting Regier’s proposal is that fact that across several languages, children have been observed to make more overextension errors with ‘out’ and ‘off’ words (thus neglecting obligatory distinctions) than with ‘in’ and ‘on’ words (Bowerman et al. 1995). Also relevant is Talmy’s (1985: 92-93) observation that “state-departure” tends to be underrepresented, relative to “state entry”, among grammatical devices (e.g., prefixes, path particles) that interact with verb roots. This tendency affects the postural “putting” verbs of Germanic languages, where postures distinguished in Goal-oriented encodings are neutralized in Source-oriented encodings: *I SET the cup / LAID the pen on the table, I *SET the cup/ *LAID the pen off the table; I *UNSET the cup/ *UNLAID the pen from the table; I TOOK the cup/ pen off the table* (Talmy 1975: 232). Notice that the contrast between “putting” to inanimate goals vs. “giving” to animate goals found in many European languages is also neutralized in “taking” events: *PUT the cup on the table/ GIVE the cup to Mary; TAKE the cup off the table/ TAKE the cup from Mary.*

References

- Bohnenmeyer, J. (1997). Yucatec Manayn lexicalization patterns in time and space. In M. Biemans & J. v.d. Weijer (Eds.), *Proceedings of the CLS Opening Academic Year 1997-1998*. Tilburg: Center for Language Studies.
- Bowerman, M., Brown, P., Eisenbeiss, S., Narasimhan, B., & Slobin, D. I. (2002). The crosslinguistic encoding of goal-directed motion in child-caregiver discourse. In E.V. Clark (Ed.), *Proceedings of the 31st Stanford Child Language Research Forum*. Stanford: Center for the Study of Language & Information. (Electronic proceedings: (<http://cslipublications.stanford.edu/CLRF/2002/CLRF-2002-toc.html>).
- Bowerman, M. & Choi, S. (2001). Shaping meanings for language: universal and language-specific in the acquisition of spatial semantic categories. In M. Bowerman & S.C. Levinson (Eds.), *Language acquisition and conceptual development*. Cambridge: Cambridge University Press.
- Bowerman, M., de León, L., & Choi, S. (1995). Verbs, particles, and spatial semantics: Learning to talk about spatial actions in typologically different languages. In E.V. Clark (Ed.), *Proceedings of the 27th Annual Child Language Research Forum*. Stanford: CSLI.
- Choi, S. & Bowerman, M. (1991). Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns. *Cognition*, 41, 83-121.
- Gleitman, L. (1990). The structural sources of verb meanings. *Language Acquisition*, 1, 3-55.
- Goldberg, A. (1995). *Constructions*. Chicago: University of Chicago Press.

- Goldberg, A., Sethuraman, N., & Casenhiser, D. (In press). Learning argument structure generalizations. *Cognitive Linguistics*.
- Jackendoff, R. (1990). *Semantic structures*. Cambridge, MA: MIT Press.
- Pinker, S. (1989). *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: MIT Press.
- Regier, T. (1996). *The human semantic potential*. Cambridge, MA: MIT Press.
- Rizolatti, G., Fogassi, L., & Gallese, V. (2001). Neurophysiological mechanisms underlying the understanding and imitation of action. *Nature Reviews: Neuroscience*, 2, 661-670.
- Talmy, L. (1975). Semantics and syntax of motion. In J. P. Kimball (Ed.), *Syntax and semantics*, Vol. 4. New York: Academic Press.
- Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and syntactic description*, Vol. III: *Grammatical categories and the lexicon*. Cambridge: Cambridge University Press.

Version 1 – tick off consultants’ responses

scene	description	consultant 1	consultant 4	consultant 7	consultant 10
begin_1	throw ball				
begin_2	tear cloth				
begin_3	open jar				
01	put candle into candle stand				
02	put plastic cup on table with mouth				
03	put armload of books on table				
04	take off sock				
05	put poster on wall				
06	put saucer on top of cup				
07	take stone out of pot of water				
08	toss book on floor				
09	take banana off table with long tongs				
10	drop book accidentally on floor				
11	take cucumber out recorder case				
12	put box up on shelf				
13	dump blocks out of tin				
14	drop apple into bag				
15	take suitcase out of room, going out of room				
16	take hand out of hole				
17	put hat on head				
18	take flower out of hair				
19	take coke can from someone				
20	put apple in bowl				
21	put stone into pot of water				
22	put fistful of rice on table				
23	take pen out hole				
24	take armload of books off table				
25	pour water out of tin				
26	pour liquid into container				
27	put stone into pocket				
28	spill water onto table when pick up glass				
29	take cup off table				
30	put pen in hole				

continued overleaf

Version 1 – continued

scene	description	consultant 1	consultant 4	consultant 7	consultant 10
31	unhang rope from tree branch				
32	take candle out of candle stand				
33	take box down from shelf				
34	drop book deliberately onto floor				
35	stuff rag into car exhaust				
36	put head into bucket				
37	take handful of beans from flat surface				
38	take head out of bucket				
39	give cup to someone				
40	put banana on table with long tongs				
41	take rag out of car exhaust				
42	put book on floor				
43	flip block off notepad into bowl				
44	take orange from box				
45	knock over bucket so blocks spill out				
46	take off hat				
47	take off coat				
48	put boot on foot				
49	take plastic cup off table with mouth				
50	put cup on table				
51	hang rope over tree branch				
52	take saucer off cup				
53	put on coat				
54	put hand into hole in tree				
55	take stone out of pocket				
56	put celery bunch into recorder case				
57	put suitcase out of room, while staying in room				
58	take poster off wall				
59	put flower into hair				
60	take magazine from floor				
<i>For last 3 clips: Is mention of both Source and Goal together okay?</i>					
61	take bag of corn from table and move to chair				
62	take apple from pile of books and move to shoe				
63	push suitcase from car to tree				

Version 2 – tick off consultants’ responses

scene	description	consultant 2	consultant 5	consultant 8	consultant 11
begin_1	throw ball				
begin_2	tear cloth				
begin_3	open jar				
01	take cup off table				
02	put celery bunch into recorder case				
03	hang rope over tree branch				
04	take flower out of hair				
05	dump blocks out of tin				
06	put poster on wall				
07	take rag out of car exhaust				
08	put cup on table				
09	put hat on head				
10	take banana off table with long tongs				
11	put saucer on top of cup				
12	put candle into candle stand				
13	take candle out of candle stand				
14	take off hat				
15	take plastic cup off table with mouth				
16	put flower into hair				
17	give cup to someone				
18	put fistful of rice on table				
19	drop book accidentally on floor				
20	take saucer off cup				
21	knock over bucket so blocks spill out				
22	take hand out of hole				
23	take magazine from floor				
24	put stone into pocket				
25	put box up on shelf				
26	take handful of beans from flat surface				
27	put armload of books on table				
28	put boot on foot				
29	take off sock				
30	take cucumber out recorder case				

continued overleaf

Version 2 – continued

scene	description	consultant 2	consultant 5	consultant 8	consultant 11
31	drop book deliberately onto floor				
32	take coke can from someone				
33	take stone out of pocket				
34	take poster off wall				
35	take suitcase out of room, going out of room				
36	take armload of books off table				
37	put pen in hole				
38	unhang rope from tree branch				
39	pour water out of tin				
40	put banana on table with long tongs				
41	put hand into hole in tree				
42	take orange from box				
43	take off coat				
44	take pen out hole				
45	take head out of bucket				
46	put on coat				
47	toss book on floor				
48	put book on floor				
49	take stone out of pot of water				
50	put stone into pot of water				
51	put head into bucket				
52	spill water onto table when pick up glass				
53	take box down from shelf				
54	stuff rag into car exhaust				
55	pour liquid into container				
56	drop apple into bag				
57	put suitcase out of room, while staying in room				
58	put apple in bowl				
59	put plastic cup on table with mouth				
60	flip block off notepad into bowl				
<i>For last 3 clips: Is mention of both Source and Goal together okay?</i>					
61	take apple from pile of books and move to shoe				
62	push suitcase from car to tree				
63	take bag of corn from table and move to chair				

Version 3 – tick off consultants’ responses

scene	description	consultant 3	consultant 6	consultant 9	consultant 12
begin_1	throw ball				
begin_2	tear cloth				
begin_3	open jar				
01	take stone out of pocket				
02	take candle out of candle stand				
03	hang rope over tree branch				
04	take rag out of car exhaust				
05	put apple in bowl				
06	take flower out of hair				
07	put stone into pot of water				
08	put fistful of rice on table				
09	give cup to someone				
10	take stone out of pot of water				
11	take pen out hole				
12	take plastic cup off table with mouth				
13	put hand into hole in tree				
14	pour liquid into container				
15	take suitcase out of room, going out of room				
16	put head into bucket				
17	unhang rope from tree branch				
18	toss book on floor				
19	drop book accidentally on floor				
20	drop apple into bag				
21	put box up on shelf				
22	put hat on head				
23	drop book deliberately onto floor				
24	put on coat				
25	dump blocks out of tin				
26	take head out of bucket				
27	take box down from shelf				
28	put flower into hair				
29	take off sock				
30	put boot on foot				

continued overleaf

Version 3 – continued

scene	description	consultant 3	consultant 6	consultant 9	consultant 12
31	take armload of books off table				
32	put book on floor				
33	take poster off wall				
34	spill water onto table when pick up glass				
35	put armload of books on table				
36	take off hat				
37	take hand out of hole				
38	put candle into candle stand				
39	put celery bunch into recorder case				
40	put suitcase out of room, while staying in room				
41	pour water out of tin				
42	take banana off table with long tongs				
43	put plastic cup on table with mouth				
44	stuff rag into car exhaust				
45	take coke can from someone				
46	put poster on wall				
47	put saucer on top of cup				
48	flip block off notepad into bowl				
49	take orange from box				
50	take saucer off cup				
51	put stone into pocket				
52	take magazine from floor				
53	take cup off table				
54	take handful of beans from flat surface				
55	put banana on table with long tongs				
56	take off coat				
57	put pen in hole				
58	take cucumber out recorder case				
59	put cup on table				
60	knock over bucket so blocks spill out				
<i>For last 3 clips: Is mention of both Source and Goal together okay?</i>					
61	push suitcase from car to tree				
62	take bag of corn from table and move to chair				
63	take apple from pile of books and move to shoe				