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Stephen C. Levinson and Asifa Majid

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Contact
Email us via library@mpi.nl
Max Planck Institute for Psycholinguistics
P.O. Box 310, 6500 AH, Nijmegen, The Netherlands

Cut and Break Clips

Design Jürgen Bohnemeyer, Melissa Bowerman, & Penelope Brown

- **Relevant Projects: Event Representation** (subprojects on high frequency verbs; causality; multi-verb constructions; event composition; event typicality)**; Space** (subproject on spatial aspects of verb semantics)

- **Type of Task: Lexical extensional elicitation with video stimuli** (elicitation of preferred and possible descriptions of cut and break events presented in short video clips on a laptop screen with adults and/or children)

- **Priority: Mid** for researchers interested in the subprojects mentioned above; undefined for anybody else (but note that verbs of breaking and cutting present a nice pathway into the argument structure of any language; therefore the task should be of interest to anybody concerned with argument structure and basic verb grammar from a descriptive or acquisitionist perspective). Also notice that the task has the potential for providing the data for a low-effort and yet rather attractive group publication (presumably a co-authored paper)!

- **Basic nature of the task:** The stimulus comprises 61 short (5-30 seconds; 5-10 seconds for the majority of clips) digitized video films in MediaPlayer format (.avi) for Windows computers, arranged in pseudo-randomized order. Most clips show one or two actors breaking various objects (sticks; carrots; pieces of cloth or string; etc.) using various instruments (a knife; a hammer; an axe; their hands; etc.). In addition, there are a few clips in which various kinds of object break spontaneously, or in which an actor induces spatial separation of an object in a way that English speakers would not consider an instance of breaking the object (e.g. opening a box). The clips are meant to elicit descriptions of the actor's actions and the state changes the objects undergo. The aim is fourfold:
  - To determine the extensions of the verbs that are used in descriptions of breaking and cutting (based on the range of clips the verbs are used to describe);
  - To determine whether particular cut/break verbs co-lexicalize manner of action (e.g. *hack*, *slash*), instrument or instrument part (e.g. *stab* [sharp point], *cut* [bladelike edge], *saw* [bladlike edge, typically serrated], *hammer* [blunt projection]), manner of state change (e.g. *split*), or type of object (e.g. *shatter* [rigid object]), or a combination of such features (investigated by comparing uses across scenes);
  - To determine whether the research language manifests a trend towards lexicalization of some rather than other of these features across the cut/break domain;
  - To test the hypothesis that the lexicalization choices mentioned above have an impact on the verbs' argument structure properties: verbs that co-lexicalize only instruments or manners of action are unergatives or transitives that antipassivize, whereas verbs that co-lexicalize only object type or manner of state change are unaccusatives or transitives that anticausativize or undergo a causative-inchoative alternation (investigated by testing the grammatical behavior of the elicited verbs in the elicited descriptions and elsewhere).

- **Background**: Verbs of cutting and breaking have attracted considerable attention from typologists, syntacticians, and acquisitionists in recent years, and there are three lines of study that converge to motivate this task. First, Pye, Loeb, & Pao 1995 have noted that there is substantial variation across languages in the lexicalization of cutting and breaking events. Thus, English has the general verb *break* that can be used regardless of what kind of object is broken, in what manner it is broken, or what instrument is used to break it. K'iche' Maya, in contrast, has no such general break verb, but instead provides different verbs for different types of objects. Mandarin Chinese requires the specification of an activity or instrument in a resultative construction ('hit-break', 'cut-break', etc.) whenever a breaking event is described.

These facts suggest that across these languages, breaking is framed as a causal chain involving an activity, an instrument, and a state change caused directly by the instrument and indirectly by the activity in which the instrument is employed. The (simple or complex) verbs used to describe breaking events may lexicalize different parts of this causal chain, focussing more on the activity (e.g. break in one blow vs. repeatedly; break forcefully/violently, etc.), the instrument or instrument-part (*cut, saw, hammer*), the type of object that undergoes the state change (e.g. wood vs. cloth vs. ceramics), or the type of change (e.g. neat separation into two pieces vs. messy separation into many pieces vs. squashing or mashing into a mass). This is not to say that all of these parameters of cutting and breaking are independent of each other (e.g. edged instruments, used canonically, inflict changes of a particular type on objects – cuts). Nor does the observation that languages differ in the lexicalization of cut-and-break verbs along the parameters mentioned above entail that a verb cannot lexicalize features on multiple or even all of the parameters.

As a second motivation, research into the relationship between verb semantics, argument structure, and transitivity has revealed that cut and break verbs fall broadly into two classes in English and other languages (Guerssel et al. 1985 considered Berber, English, Warlpiri, and Winnebago): *break*-type verbs which (if basically transitive) anticausativize or undergo causative-inchoative alternation, like the verbs in (1) (alternatively they may be basic unaccusatives), and *cut*-type verbs which don't, but instead antipassivize or undergo e.g. an 'unspecified object alternation', a 'characteristic property of agent/instrument alternation', or a 'conative alternation', etc. (cf. Levin 1993), like the verbs in (2):

(1) a. Sheila broke the vase / snapped the pencil / tore the shirt.
    b. The vase broke. / The pencil snapped. / The shirt tore.
    c. *Sheila was breaking/snapping/tearing when we entered her workshop.
    d. *Sheila broke at the vase / *snapped at the pencil / *tore at the shirt.
(2) a. Sheila cut the bread / sawed the log / slashed the painting.
    b. *The bread cut. / *The log sawed. / *The painting slashed.
    c. Sheila was cutting/sawing/?slashing when we entered her workshop.
    d. Sheila cut at the bread / sawed at the log / slashed at the painting.

This variation is accounted for by Guerssel et al. 1985 and Hale & Keyser 1986 with reference to the following lexical representations for *cut* and *break*:

(3) 'break': x CAUSE (y come to be BROKEN)
(4) 'cut': x produce CUT on y, by sharp edge coming into contact with y

That is, *break*-type verbs lexicalize only a state-change, plus (if they are root transitive or causativized) some non-specific cause, whereas *cut*-type verbs lexicalize activity and instrument information (they talk about what the agent is doing – e.g. producing a cut – and what instrument (s)he is using – e.g. a tool with a sharp edge) but do not necessarily entail a state change.

Thirdly, Pye, Loeb, & Pao 1995 have emphasized the acquisition conundrum posed by the combination of the two argument structure patterns with the cross-linguistic variation they found in the lexicalization of breaking/cutting events: if the same stimulus scene is described using a *cut*-type verb in one language and a *break*-type verb in another, how do children determine the class membership of the verb typically used to describe such scenes in the language they are learning, and hence project the right argument structure? (Syntactic bootstrapping might help!) Indeed, data from Schaefer's 1980 scene-sorting experiments and Melissa's diary studies suggest that English-learning children do have difficulties solving this problem. Consider the following dialogue, in which six-year-old C reveals a completely manner/instrument-neutral interpretation of *cut*:

(C's younger sister has found a nut and wants it opened. C tells her:)
C: *cut* it open. (Repeated several times over a minute.)
M: What should she do to cut it open?
C: just [noise] pow!, with a hammer. (Makes pounding gesture.)
M: Will that cut it open?
C: yeah, unless it's extra strong. (= too tough.)

With respect to what has been established already by Guerssel et al. 1985 and Pye, Loeb, & Pao 1995, the aim of this task is to broaden the typological database. The results should allow us to test the predictions of Guerssel et al. 1985 and Hale & Keyser 1986 against a larger set of typologically diverse languages and in a more comprehensive manner (Guerssel et al. 1985 only considered the causative-inchoative alternation and the conative alternation). (An orthogonal, more general argument-structure question for which relevant data can be collected with little additional effort is whether the subject of a transitive causative sentence like 'X broke the window' must be an animate agent ['John broke the bottle'], or can also be an instrument ['the hammer broke the bottle'] or other inanimate effector ['a falling rock broke the bottle']. Languages vary considerably in their 'tolerance' for nonagentive subjects in such sentences [DeLancey 1984], but little is known about possible lexical or grammatical correlates of this variation.)
Our results should also put us in a position to study the typological patterns underlying the lexicalization of cutting and breaking more systematically than Pye, Loeb, & Pao 1995 did (since we ask systematically whether cut/break verbs lexicalize action/manner information, instrument information, type-of-change information, or type-of-object [theme/patient] information). At the same time, findings will broaden our understanding of (a) the lexicalization patterns operative in our research languages -- for example, does the language pay more attention to theme/patient properties, actions/manners, or instruments in the lexicalization of cutting and breaking?; is there a preference for transitive or for intransitive lexicalization? (According to Haspelmath 1993, break verbs tend to lexicalize as transitives, reflecting the greater likelihood in experience that things break through being acted upon rather than spontaneously; the same is probably true for cut verbs – see also Croft 1990); (b) the interaction between lexical semantics and argument structure; and (c) the acquisition of verb semantics and argument structure.

- **Technical requirements and settings:** Windows laptop with Windows Media-Player 6, as with Moverb and Staged Events tasks. Same player settings: set 'Playback' to '1 time'; *don't* check 'Rewind when done'; make sure the box 'Use same player for each media file' has been selected. Launch each clip from Windows Explorer by double clicking on the file icon. Use ALT+ENTER to enlarge to full screen, then after displaying the clip press ESC to continue. Display clips in the order in which they are listed in Explorer (make sure the option 'Arrange Icons: By Name' is selected on the View menu of Explorer). The clips come with sound; make sure the volume of your speakers is turned up sufficiently for the participant to register the sound. It is expected that the sound will often help clarify the content of the clips. Record responses on audio or video tape (see below), with external mike if required by your working environment; plus optionally a notepad to note down the verb forms featured in the responses.

- **How to run:** After displaying a clip, first make sure the consultant recognizes the object broken and the instrument used. If not, negotiate an object the consultant is familiar with that breaks in the same way as the object in the clip, or a tool that can be used in the same way to induce the same state change (you may have to replay the clip in the process). Prompt the consultant to answer two questions with respect to each clip (you may not need to repeat the questions every time): *What did the agent do?* and *What happened to the object?* (Clips that show spontaneous breaking of course only warrant the second question.) Make sure the

consultant understands that you're aiming for what (s)he considers the most natural response in the research language. Now follow the elicitation procedure outlined below:

- In case the second question elicits a passive construction, ask whether it is also possible to use a middle voice or anticausative or basic unaccusative form of the same or a different verb root. In principle, though, you need to establish only once per consultant whether the root in question produces any of these forms.
- In case the first question elicits a transitive/causative construction (which it should), test whether it is possible in general (but not necessarily in describing the clip!) to use the same verb in an antipassive form, or whether the verb undergoes a 'characteristic property of agent/instrument alternation' (e.g. 'chop' -> 'Pedro chops (wood) (for a living)'; 'cut' -> 'This knife cuts the bread (it's sharp enough)') or a 'conative alternation' ('cut the bread' -> 'cut AT the bread'). Determine also whether ordinary transitive uses of the verb require an agentive subject or – in suitable contexts – can also take an instrumental or otherwise inanimate subject: e.g., 'John broke the bottle' vs. 'the hammer/rock broke the bottle'. You only need to do this once per consultant for every verb that occurs during the elicitation. Ask for alternative ways to describe the clip, esp. using different verb roots, that may occur to the consultant.
- Test the applicability of verbs not mentioned by the consultant that you think might also be used in describing the clip or that you want to establish as excluded in response to the clip. In particular, if you have already established that the verb(s) volunteered by the consultant are theme/patient-specific, test the applicability of more general break verbs and manner/instrument-specific verbs, and if you have already established that the verb(s) volunteered by the consultant are not theme/patient-specific and/or manner/instrument-specific, test the applicability of more theme/patient-specific verbs.
- Ask the consultant which verbs (s)he considers more appropriate in describing the scene, and – if you think this may be significant – ask for the rationale (s)he is using in making this judgement.
- Try to determine how the applicability would be affected by changing certain aspects of the scene. An important manipulation along these lines – which ideally would have been included in our stimuli – is to **use instruments *noncanonically* to effect a cut/break**: e.g., breaking an egg or a pot with a knife; stabbing or sawing something with scissors. This manipulation is important to determine the extent to which particular verbs are associated with particular instruments *per se*, as opposed to with instruments/instrument parts used in a particular manner. (Schaefer 1980 found that for children learning English, knives and scissors tend to evoke *cut* regardless of how they are actually used to effect a separation.) In further variations, try replacing the object or tool with other objects/tools not featured in any of the clips. Use objects or tools in your environment to demonstrate. Ask for other verbs similar to the ones produced by the consultant that describe similar but different events.

We recommend running the entire task with a **minimum of three consultants.** Increasing the number of consultants becomes proportionally more relevant the more the responses disagree across consultants.

There are **fourteen scenes which feature spatial separation** rather than breaking (opening the hand/mouth/eyes, a door, a box, a pair of scissors; removing the cap from a pen; peeling an orange; etc.). These have been included in order to test to what extent the verbs elicited by the other clips are really unique to the domain of breaking, and because acquisition data shows an interesting interaction between the opening domain and the breaking domain. The same procedure should be followed for these clips as for the other clips. There are **also three clips which feature partial rather than complete breaking**. These are included to determine whether the verbs used in response to the corresponding complete-breaking clips entail or

implicate complete destruction of the object. Again, these clips should be treated in elicitation just like the other clips.

You may be aware of many more verbs of the same domain that didn't occur during the task, or you may want to elicit further verbs. Try for example stones (both as tools and as patients/themes); try any kind of tool or patient/theme object that is saliently available at your field site but is not represented in the clips; e.g. different sorts of wood, other plant(part)s or artifacts created from plant(part)s, shells, horn, animal skin/fur; try all kinds of artifacts that may be broken in the sense that they become dysfunctional, e.g. containers that you poke a hole in, blades or arrow/spear heads that you dull, radios, telephones, or fans that are dropped and then do not work, etc. With respect to any of these additional verbs, determine its argument structure properties in the way indicated above. Also, some or all verbs of the domain may show additional grammatical properties not considered above. For example, they may take instrument applicatives, undergo noun incorporation, incorporate body part nouns or manner adverbs, or participate in external possessor constructions (cf. English *cut/slash/*break/*shatter someone on the nose*). If you consider these behavioral properties characteristic of the cut/break domain, try to assess the behavior of the whole set of verbs with respect to these properties.

- **Recording, coding, analysis:** In order to get a quick assessment of the distribution of verbs across clips, you may want to simply write down a citation form of each verb produced by the consultant, plus a mark that registers whether the verb was featured by the consultant's preferred response or by a prompted response, or whether the consultant considers application of the verb to the scene questionable or anomalous. In addition, you may optionally note down the relevant range of forms the verb root produces (unaccusative, causative, anticausative/middle, antipassive, unergative, etc.) and the argument structure alternations it undergoes. However, because we're interested in the descriptions of the clips in their entirety (to the extent that consultants answer the two elicitation questions), and in particular in the clause structure, not just the verb, **we recommend recording the elicitation sessions.** You may even want to consider video-taping the sessions, as gestural information may reveal both the underlying construal of the manner in which the object is broken and the degree of typicality the consultants assign to a scene.

  The results we hope to obtain from each contributor have the following format: for each clip and each consultant, state the verbs the consultant produced spontaneously in response to the two elicitation questions and the constructions the verbs appeared in; state the verbs and constructions the consultant also considered applicable; and state which verbs/constructions the consultant considered problematic or anomalous in descriptions of the clip. Cross-reference the clips with the descriptive parts of the file names (the file names start with *cb* for "cut and break" plus a number that determines the place of the clip in the pseudo-randomized list; then follows the descriptive part which for most of the scenes has the format 'object-instrument/manner', e.g. *chands* 'piece of cloth broken with the hands', *shammer* 'stick broken with a hammer', *carspont* 'carrot breaking spontaneously', etc.). In addition, provide a complete list of all the verbs of cutting, breaking, and opening that were produced by the consultants during the task. State for each verb which scenes it was used for, what its basic argument structure is, what grammatical constructions it occurs in, and -- to the extent that you have assessed this -- whether it seems to co-lexicalize an activity, an instrument, a manner of change, or a type of object. This information you may obtain by determining what is constant across all the clips that elicited a particular verb – the instrument, the activity, the manner of change, or the object broken. Note the grid-like design of the core set of clips, as depicted in Table 1:

object	**piece of cloth**	**stick**	**piece of**	**Carrot**

instrument /manner			rope/string	
With hands	chands	shands	rhands	carhands
With knife	cknife	sknife	rknife	carknife
With hammer	hammer	shammer	rhammer	carhammer
Karate-style	ckarate	skarate	rkarate	carkarate
With pointy tool	cpoint	spoint	rpoint	carpoint
Furiously	cfury	sfury	rfury	carfury
Spontaneously	cspont	sspont	rspont	carspont

Table 1. ***Design of the core cut/break scenes***

('carknife' is subdifferentiated into cutting the carrot along the long vs. short axis vs. chopping it repeatedly along the short axis.) Clips with further instruments (e.g. scissors, saw) are not listed in the table because they only occur with some of the types of objects. Suppose the research language has a theme/patient-sensitive break verb 'break wood'. Then ideally that verb would show up in responses to all the clips in the 'stick' column and nowhere else. Or take a verb 'break with hammer' – that should show up in responses to all the clips in the 'with hammer' row and nowhere else.

Comments: The current set of clips is bound to miss important cut/break scenes – as relevant for particular languages and/or cultures, but quite possibly also cross-linguistically. There may be important parameters of the linguistic encoding of cutting and breaking that we have overlooked. At the same time, the current set may devote too much attention to issues that prove of little relevance cross-linguistically. If you have suggestions, please send a note to: bohnem@mpi.nl.

Conclusions: When you have run the task, please send a message to Jürgen Bohnemeyer to inform him about the outcomes and problems. After the completion of the 2001 field season, an interest group will be formed for further analysis and comparison of the data collected with the cut and break clips.

Citation: Publications should cite: "Cut and break clips, version 3, designed by Jürgen Bohnemeyer, Melissa Bowerman, and Penelope Brown, Field Manual 2001, Language and Cognition Group, Max Planck Institute for Psycholinguistics". There are no copyright restrictions, and the films may be downloaded from the Institute website, but please let us know of any research project undertaken with them, and do cite the source.

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