

Pluractional Demonstrations

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Ideophones are a grammatically distinguished class of expressions in a language that specialize in depicting sensory imagery (Dingemanse 2011: p. 25; 2012). This talk develops a formal semantics of ideophones that can account for their meaning and compositional properties. I propose an analysis that extends work in Davidson 2015, whose demonstration-based framework provides a formal foundation for the semantics of ideophones that captures the difference between description and depiction, the kind of meaning ideophones traffic in. The talk then shows how the demonstration-based account can be used to analyze pluractionality in the ideophone domain. In particular, case studies I show that there are two previously unrecognized types of ideophonic pluractionality, and that their properties support the demonstration-based account. The first, which I call “demonstration-external pluractionality”, involves a speaker using an ideophone to do a plurality of demonstrations that characterize a plurality of events. The second kind of ideophonic pluractionality, which I call a “demonstration-internal pluractionality”, is much more similar to pluractionality in the verbal domain, and involves special morphology that derives ideophone stems that can only be used to demonstrate plural events. Finally, I use the contrast between these two types of pluractionality in the ideophone domain to investigate the line between iconic and non-iconic aspects of the semantics of ideophones.

Ideophones are a grammatically distinguished class of expressions in a language that specialize in depicting sensory imagery (Dingemanse 2011: p. 25; 2012). The root *tsok'* in (1) from Tzeltal (Mayan) is a canonical example of an ideophone given these two criteria.

- (1) pura ch'il-bil-Ø, **tsok'** x-chi-Ø ta mantekat
 just fried-PERF-B3 IDF:sound.start.to.fry NT-say-B3 P lard
 it just gets fried, it goes *tsok'* in the lard (Pérez González 2012: p. 162)

It is morphosyntactically distinguished from other roots in the language in virtue of being able to bear no inflectional morphology and only appearing underived as the complement of *chi* 'say'. Semantically, it depicts a sound, which is the most common type of sensory imagery depicted by ideophones crosslinguistically (e.g. Kilian-Hatz 1999: p. 35–41; Akita 2009: p. 20–32).

The literature on the formal semantics of ideophones is scarce. This is due to two challenges:

- α There is a persistent intuition in the literature that ideophones are used to perform events, not describe them (Dingemanse 2011; Kita 1997; Nuckolls 1995), but is not at all clear how to formalize the distinction between descriptive and depictive meaning.
- β The restricted distribution of ideophones presents obstacles for doing formal lexical semantics. By avoiding modification, derivation / inflection, and appearing as arguments to only a small class of verbs, it is difficult to isolate their meaning and to determine their type.

This talk addresses both problems, developing a formal semantics of ideophones that can account for their meaning and compositional properties. To address (α) I propose an analysis that extends work in Davidson 2015, which provides a novel unified account of quotation and a variety of iconic phenomena in sign language in terms of a *demonstrations*—a type of communicative event that stands in a similarity relation with the event demonstrated. The demonstration-based framework provides a formal foundation for the semantics of ideophones that captures the difference between description and depiction. Addressing (β) is more complex. While ideophones resist derivation / modification, it has been underappreciated that ideophones often do have pluractional derivations (i.e., they have forms in which they necessarily make reference to plural events). Pluractionality, then, provides the hook into (β) that we need because its formal semantics is better understood than ideophones (Henderson 2012; Lasersohn 1995; van Geenhoven 2004: among many others. Along these lines, this talk shows through case studies that there are two previously unrecognized types of ideophonic pluractionality, and that their properties support the demonstration-based account.

The demonstration-based account of ideophones: The formal proposal is couched in (lax) many-sorted type logic with plural events and plural entities (both domains have the familiar lattice structure), as well as times (which also has its familiar structure). Events and their participants are linked in the normal neo-Davidsonian way via theta-role functions: AG, TH, etc. We need two less commonly assumed extensions of this set-up. First, following Potts 2007, I include a domain of linguistic expressions of type μ , and which for simplicity's sake, I treat as a pair $\langle \text{string}, \text{DENOTATION} \rangle$. I write expressions of type μ in **sans serif** assuming $\text{woman} = \langle \text{woman}, \lambda x[\text{WOMAN}(x)] \rangle$. I use \lceil Quine corners \rceil as a function that returns a linguistic expression's string and \lfloor bottom corners \rfloor to return its denotation. Second, following Davidson 2015, I assume a domain of demonstrations of type δ which is a subset of the domain of events. We can think of demonstration events as events with communicative intent. The theme of a demonstration event in the cases at hand will always be a linguistic object, and so I assume a special theta-role function TH_δ from the domain of demonstrations to the domain of linguistic objects.

In the spirit of Davidson 2015, I take *be like*-quotation to involve the operator in (2), which takes a linguistic object and returns a relation between a demonstration event d and an event e , just in case d reproduces aspects of e . Thus, assuming *like* to denote the current demonstration event (c.f. *hereby* in performatives Eckardt 2012), a *be like*-quotation of the form *Mary was like “I play guitar”* has the truth conditions (3) after composing with the agent and after existential closure.

$$(2) \quad \text{Q-DEMO} \rightsquigarrow \lambda u_\mu \lambda d \lambda e [\text{TH}_\delta(d) = u \wedge \mathbf{demo}(d, e)]$$

$$(3) \quad \exists e [\text{AG}(e) = \text{M} \wedge \text{TH}_\delta(d_{13}) = \mathbf{I \text{ play guitar}} \wedge \mathbf{demo}(d_{13}, e)]$$

It is true just in case there is an event e whose agent is Mary and the current demonstration event, whose theme is the linguistic entity **I play guitar**, reproduces aspects of e . The particular reproduction relationship is purposefully left vague, but a listener might reasonably (defeasibly) infer that e is a speaking event in which the linguistic object $\ulcorner \mathbf{I \text{ play guitar}} \urcorner$ is uttered.

Before I extend this account to ideophones, consider the following two facts about ideophones in Tseltal. First, while there are roots that can only be ideophones, like *tsok'*, it is possible to explicitly derive verb roots into ideophones (e.g., *k'oj* ‘to hit’, *k'oj-i* IDF: ‘sound of a hit’). Crucially this kind of derivation does not apply productively to roots of other categories. Second, while any linguistic expression can be quoted, only the distinguished subclass of ideophone roots and derived ideophones can be used like *tsok'* in (1) to depict sensory imagery. These facts suggest that (i) ideophones are related to verbs in some way, and (ii) we cannot reduce the ideophone construction to quotation. Thus, in addition to the operator Q-DEMO, languages have the operator ID-DEMO in (4), which takes a linguistic expression and uses it to make ideophone demonstration. Ideophone demonstrations differ from quotation in not using the underspecified **demo** relation, but instead use **struc-sim** _{$\ulcorner u \urcorner$} (structural similarity), defined colloquially in (5) for reasons of space.

$$(4) \quad \text{IDEO-DEMO} \rightsquigarrow \lambda u_\mu \lambda d \lambda e [\text{TH}_\delta(d) = u \wedge \mathbf{struc-sim}_{\ulcorner u \urcorner}(d, e)]$$

$$(5) \quad \mathbf{struc-sim}_{\ulcorner u \urcorner}(d, e) \text{ iff there is a partition of } e \text{ such that (i) there are as many members of the partition as atomic parts of } d, \text{ (ii) each element of the partition satisfies } \ulcorner u \urcorner \text{ (the denotation of the linguistic object } u \text{), and (iii) there is a one-to-one function from the atomic parts of } d \text{ to the partition so that temporally adjacent atomic parts of } d \text{ separated by time } t \text{ are mapped to temporally adjacent elements of the partition separated by time } t.$$

Not only does the condition **struc-sim** _{$\ulcorner u \urcorner$} allow us to distinguish quotation and the ideophone construction, which we must, but note that to satisfy **struc-sim** _{$\ulcorner u \urcorner$} , a linguistic object u must denote a predicate of events. This explains the connection between verbs and ideophones in Tseltal, which I take to uniformly denote event predicates.

Against this backdrop, we can assign to (1) the truth conditions in (6), which will hold just in case: (i) there is an event e that takes place in the lard whose participant is x_1 (the particular individual will be given by the context), (ii) The current demonstration event d_{13} has as its theme the linguistic object **tsok'**, and (iii) this demonstration event is structurally similar to e .

$$(6) \quad \exists e [\text{AG}(e) = x_1 \wedge \text{TH}_\delta(d_{13}) = \mathbf{tsok'} \wedge \mathbf{struc-sim}_{\ulcorner \mathbf{tsok'} \urcorner}(d_{13}, e) \wedge \mathbf{loc}(e) = \sigma x. \mathbf{LARD}(x)]$$

In this case d_{13} , which is an atomic demonstration, demonstrates e just in case it's theme is the linguistic object **tsok'** and we can partition e into exactly one event that satisfies $\lambda e [\mathbf{TSOK}(e)]$, namely e is an event of frying sound emission.

Two kinds of pluractional ideophones: While many of the structural similarity conditions are vacuous when there is a single demonstration, they come into full effect with pluractional ideo-

phones. The first example comes from Tseltal. While (1) has only a single ideophone and the event depicted has a singular character, one can reduplicate the ideophone to depict plural events.

- (7) ... **kan** [pause] **kan** [pause] **kan** x-chi-Ø=e
 ... IDF [pause] IDF [pause] IDF NT-say-B3=ENC
 ‘... it goes knock knock knock.’

Pérez González 2012: p. 242

Not only does (7) only depict plural events, but the downtime between those events must match the down time between uses of the ideophone. Both properties are immediately accounted for in the demonstration-based account, as shown in (8), which gives the event-predicate derived by applying (4) to the linguistic object linguistic object *kan* and demonstration at hand, which I take to be $d_4 = d_1 \oplus d_2 \oplus d_3$, the sum of three demonstrations events involving *kan*.

- (8) $\lambda e[\text{TH}_\delta(d_4) = \text{kan} \wedge \text{struc-sim}_{\lfloor \text{kan} \rfloor}(d_4, e)]$

An event *e* satisfies (8) just in case the theme of d_4 the linguistic object **kan**—which I assume is always distributively satisfied, that is, the atomic parts of d_4 have as their theme **kan**—and $\text{struc-sim}_{\text{kan}}(d_4, e)$. This latter condition requires that *e* can be partitioned into as many $\lfloor \text{kan} \rfloor$ events as there are atoms in d_4 . Moreover, the elements of the partition and atoms in d_4 are similarly structured in time—i.e., there is a one-to-one mapping from the demonstration events to the knocking events that respects temporal adjacency and downtime. The result is that using an ideophone root to make multiple demonstrations allows one to demonstrate a pluractional event. I call this “demonstration-external” pluractionality because the pluractional content is external to any one demonstration. Its existence follows from the fact that demonstrations are just events, and so they can be summed and have internal temporal structure, just like the events they demonstrate.

We also find “demonstration-internal” pluractionality, which is similar to verbal pluractionality. A central piece of the analysis is that ideophones are, at their core, event-denoting. They get their depictive semantics in virtue of appearing ideophone constructions. This means that one expects to find morphology that derives ideophones stems that denote only plural events. When one of these derived pluractional ideophones is used, even an atomic demonstration, it will necessarily depict a plural event. This is exactly what one sees in Upper Necaxa Totonac (UNT, Totonacan).

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| (9) | lam ‘fire flaring up’
lam-(a)ma ‘coals glowing red’ | (10) | <i>xala</i> ‘a wheelbarrow jolting its load’
<i>xala-la</i> ‘hot rocks crackling from heat’ |
|-----|--|------|--|

The UNT ideophone derivation is different from Tseltal in not being iconic or completely productive. In particular, while some ideophone pairs like (9) show a semantic relationship, others like (10) are opaque. This suggests that reduplication is the phonological reflex of a derivational affix: $\text{CV}_{v_{id}} \rightsquigarrow \lambda V_{et} \lambda e[(\text{plrc}(V))(e)]$. Semantically, it derives predicates of plural events. Syntactically, it derives an ideophone stem—one that can be used in the basic ideophone construction based on (4). When used, though, even in an atomic demonstration, the speaker will necessary depict a plurality of events because that is what the stem denotes.

Summary: The primary result is a compositional semantics of ideophones that respects their iconic character while relating their meaning to more familiar, non-iconic semantic phenomena. I have shown that this semantics allows us to diagnose two kinds of ideophonic pluractionality whose analysis closely tracks previous work on pluractionality in being event-based and rooted in the temporal structure of those event-sums.

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