Pluractional Demonstrations

Ideophones are a grammatically distinguished class of expressions in a language that specialize in depicting sensory imagery. The root *tsok’* in (1) from Tseltal (Mayan) is a canonical example.

(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)

The literature on the formal semantics of ideophones is scarce. This is due to two challenges: (α) There is a there is a persistent intuition in the literature that ideophones are used to perform events, not describe them (e.g., Dingemanse 2011; Nuckolls 1995), but is not 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 by extending work in Davidson 2015 on quotation and various iconic ASL phenomena. I then propose two new kind of pluractional ideophones, and demonstrate the power of the account by showing how it can easily deal with both.

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 〈string, DENOTATION〉. I write expressions of type µ in sans serif assuming woman = 〈woman, λx[woman(x)]〉. I use “Quine corners” as a function that returns a linguistic expression’s string and \text{bottom corners} 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 \text{TH}_δ from the domain of demonstrations to the domain of linguistic objects.

Before presenting the account, 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 quotational demonstrations discussed in Davidson 2015, languages have the operator ID-DEMO in (2), which takes a linguistic expression and uses it to make an ideophone demonstration.

(2) \text{IDEO-DEMO} \leadsto \lambda u_{\mu}\lambda d\lambda e[\text{TH}_δ(d) = u \land \text{struc-sim}_{u,\mu}(d, e)]

(3) \text{struc-sim}_{u,\mu}(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 } \tau_{u,\mu} \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 \text{struc-sim}_{u,\mu} allow us to distinguish quotation and the ideophone construction, but note that to satisfy \text{struc-sim}_{u,\mu}, \text{ a linguistic object } u \text{ must denote a predicate of events. This explains the connection between verbs and ideophones in Tseltal, which I take to denote event predicates.
Given (2), the truth conditions of (1) are (4): (i) there is an event e that takes place in the lard whose participant is x₁ (the particular individual will be given by the context), (ii) the current demonstration event d₁₃ has as its theme the linguistic object tsök', and (iii) this demonstration event is structurally similar to e.

(4) ∃e [AG(e) = x₁ ∧ TH₄(d₁₃) = tsök' ∧ struc-sim₄,tsök₄(d₁₃,e) ∧ loc(e) = σx. LARD(x)]

In this case d₁₃, which is an atomic demonstration, demonstrates e just in case it’s theme is the linguistic object tsök' and we can partition e into exactly one event that satisfies λe[TSOK(e)].

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 ideophones. 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.

(5) . . . 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 (5) only depict plural events, but the downtime between those events must match the downtime between uses of the ideophone. Both properties are accounted for in the demonstration-based account, as shown in (6), which gives the event-predicate derived by applying (2) to the linguistic object kan and demonstration at hand, which is d₄ = d₁ ⊕ d₂ ⊕ d₃, the sum of three demonstrations events involving kan.

(6) λe[TH₄(d₄) = kan ∧ struc-sim₄,kan₄(d₄,e)]

An event e satisfies (6) just in case the theme of d₄ the linguistic object kan—which I assume is always distributively satisfied, that is, the atomic parts of d₄ have as their theme kan—and and struc-simkan(d₄,e).

This latter condition requires that e can be partitioned into as many kan₄ events as there are atoms in d₄. Moreover, the elements of the partition and atoms in d₄ 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 events, which 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 in ideophone constructions—i.e., constructions using ID-DEMO. 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).

(7) lam ‘fire flaring up’
    lam-(a)ma ‘coals glowing red’

The UNT ideophone derivation is different from Tseltal in not being iconic or completely productive. In particular, while some ideophone pairs like (7) show a semantic relationship, others like (8) are opaque. This suggests that reduplication is the phonological reflex of a derivational affix: CVₜₖᵢₜd ≃ λVₜₖₜλe[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 (2). When used, though, even in an atomic demonstration, the speaker will necessarily depict a plurality of events because that is what the stem denotes.