Redevelopment of a Morphological Class

Josef Fruehwald, University of Pennsylvania

The interaction between Coronal Stop Deletion (also known as TD Deletion) and morphological structure in English is one of the most studied phenomena in variation research (e.g. Guy, 1991, and references therein). This work re-examines some findings from the previous literature on the acquisition of this variation, and derives some unique results and insights with careful morphological analysis of the semiweak past tense.

TD Deletion in English targets syllable final /Ct/ and /Cd/ clusters. There are a number of different morphological contexts which are susceptible to this deletion process, and they have been roughly categorized as regular past tense (*missed*), semiweak past tense (*kept*), monomorphemes (*mist*) and *n't* clitics. In most studies, the semiweak past tense has a higher rate of deletion than the regular past. Some research has shown that the semiweak past tense has a unique developmental pattern of acquisition. Citing a case study, Labov (1989) shows that while a child matches his parents' rate of deletion in the other morphological classes almost exactly, his behavior with the semiweak verbs is strongly divergent from his parental input, with far more deletion. Guy and Boyd (1990) looked at a broad age sample, and found that older speakers have a much smaller, or no difference in deletion rates between the semiweak past and the regular past while adolescent speakers had almost complete deletion, representing a developmental pattern extending from adolescence to late adulthood (4). They proposed that this was due to a changing interpretation of /t/ in semiweak verbs, from absent, to part of the stem, to an affix.

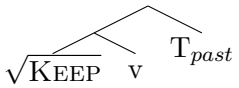
In Distributed Morphology (Halle and Marantz, 1993*; inter alia*), two distinct processes generate the semiweak past tense form: stem readjustment, and vocabulary insertion at the tense head (2–3). Given these two distinct operations, the three stage developmental pattern of Guy and Boyd (1990) can be simplified to just two competing grammars (Kroch, 1989, 1994): one with VI of /t/ for these semiweak past tense roots, and one VI of a null morpheme (5). The morphological development described by Guy and Boyd (1990) is redescribed here as changing rates of selection of the t-insertion grammar over the ∅-insertion grammar. This formulation corresponds well to the work of Sankoff and Blondeau (2007) demonstrating that speakers can change in their *quantitative selection* of *qualitative variants* well outside of the critical period.

Separating Stem Readjustment from VI also allows us to describe the divergent behavior of children from their parental input. Specifically, they appear to have a mutual exclusivity bias that T_{past} either only triggers a stem readjustment, or only has overt phonological material. Some production data provides evidence for this bias. The /t/ exponent of T_{past} can trigger regressive devoicing in the stem. If speakers have ∅-insertion, then this devoicing would have to be handled by a more complex stem readjustment rule for stems like *leave* and *lose* (7). For stems like *keep* and *sleep*, where the regressive devoicing is vacuous, no more complex readjustment rule is necessary. We predict that speakers would be less likely to select the ∅-insertion grammar (resulting in more /t/ presence) when the necessary readjustment rule would be overly complex than when it would be otherwise well supported in the input. Guy and Boyd (1990) report that for adolescents under 14 in their sample, *left* and *lost* have more /t/ presence than *kept* and *slept*, consistent with our prediction. Evidence for the persistence of this bias into later adulthood can also be found in production data from adult speakers drawn from the Buckeye corpus (Pitt et al., 2007). We examined the by-word random intercepts from a mixed effects logistic regression which is specified in (8). *Kept*, *crept* and *slept* have higher rates of unexplained /t/ absence than *lost* and *left* after the fixed effects have been controlled for (9), also consistent with our prediction.

Clearly separating the processes generating the semiweak past tense into Vocabulary Insertion and Stem Readjustment revealed the mutual exclusivity bias in past tense formation in children, and simplified the description of the semiweak verbs' age graded pattern. This competing grammars analysis also complicates the notion of a "target grammar." Surely speakers aren't taking until age 50 to reach the "target" t-insertion grammar. Rather, speakers are acquiring target *grammars*, a situation which should be generally true for cases of stable variation. Why one grammar should increase in its frequency of usage over speakers' life spans is a separate and interesting question.

Semiweak Structure and Processes

(1)

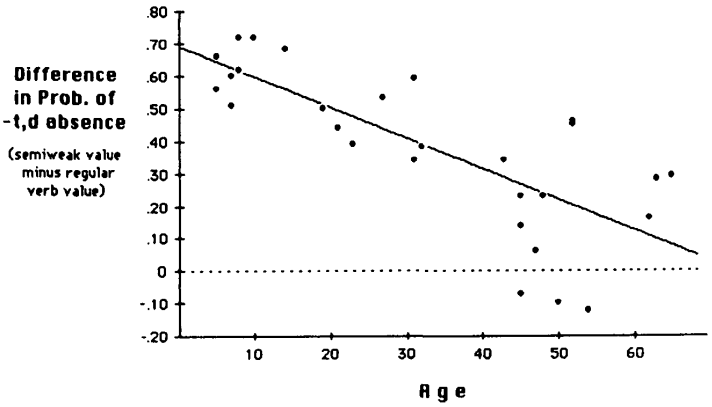


(2) Vocabulary Insertion: $\mathrm{T}_{past} \leftrightarrow$ /t/ { $\sqrt{\textsc{Keep}}$, $\sqrt{\textsc{Leave}}$, ... }

(3) Stem Readjustment: i $\rightarrow$ ε/ T_{past}{ $\sqrt{\textsc{Keep}}$, $\sqrt{\textsc{Leave}}$, ... }

Grammar Competition

(4) Difference between semiweak and regular past /t/-absence across ages (from Guy and Boyd (1990))



(5) $\mathrm{T}_{past} \leftrightarrow \emptyset$ { $\sqrt{\textsc{Keep}}$, $\sqrt{\textsc{Leave}}$, ... } $\sim$ $\mathrm{T}_{past} \leftrightarrow$ /t/ { $\sqrt{\textsc{Keep}}$, $\sqrt{\textsc{Leave}}$, ... }

Necessary Readjustment Rules given ∅-Insertion Grammar

(6) i $\rightarrow$ ε/ T_{past}{ $\sqrt{\textsc{Keep}}$, $\sqrt{\textsc{Leave}}$, ... }

(7) +voice $\rightarrow$ −voice/ __# T_{past}{ $\sqrt{\textsc{Leave}}$, ... }

Statistical Modeling

(8) Model Specification:

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t_presence ~ MorphologicalClass + PrecedingSegment + FollowingSegment +
WordLogFrequency + (1 | Subject) + (1 | Word)
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(9) By-Word Random Intercepts:

Word	kept	crept	slept	lost	left
Intercept	-0.74	0.06	0.08	0.28	0.41

Word $\sigma = 0.37$

References

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