On the Representation of sC Clusters

sC clusters defy many of the constraints that hold of true branching onsets. Thus, many researchers have proposed that s is organized outside the onset constituent containing the following C, as an appendix (e.g. Steriade 1982, Levin 1985; Goldsmith 1990, Vaux 2004) or coda (Kaye 1992). Both of these proposals share the position that syllables are highly structured. Other researchers have argued that the differences between sC clusters and branching onsets can be explained by perceptual considerations alone (Fleischhacker 2001, 2005). In this paper, I argue that the patterns of behaviour displayed by sC clusters are best captured through s analysed as a coda. I show that patterns of cluster repair (contra Fleischhacker) as well as cluster well-formedness on the sonority dimension follow from the coda analysis.

I consider obstruent+sonorant clusters (obstr+≠s) to be branching onsets (1). Onsets are left-headed (Kaye, Lowenstamm & Vergnaud 1990). In contrast to dependents, heads can host a range of segmental material. For branching onsets, this effectively means a wide range for place (lab/cor/dor+liq). The structure I adopt for sC is in (2) (Kaye 1992): s is a coda (rhymal dependent) for initial as well as medial clusters. Regarding place, C1 in a branching onset has more in common with C2 in an sC cluster (s+lab/cor/dor), suggesting that sC clusters are right-headed. If onsets are left-headed, s must be outside this constituent, as in (2).

The firm line between (1) and (2) is challenged by Fleischhacker's (2001) results on epenthesis in clusters in L2 acquisition and loanwords. Obstr+son behaves as a single class but sC does not behave uniformly, leading Fleischhacker to abandon a structural approach to the syllable (see also Steriade 1999, Côté 2000). Fleischhacker's survey of epenthesis in (3) confirms earlier findings (Broselov 1983) that speakers are reluctant to epenthesize into s+stop and outside of stop+son: Egyptian Arabic uses anaptyxis for clusters aside from s+stop; Wolof uses prosthesis for clusters other than stop+son. In addition, though, (3) shows that languages often draw the line internal to the s+son class. On Fleischhacker's analysis, the epenthesis site is chosen to maximize perceptual similarity between the target form and the output.

Consider, however, cross-linguistic preferences on C2 sonority profile in word-initial sC clusters. Since the perceptibility of consonants in C2 position in such clusters will be partly compromised by the preceding s, the most perceptible of consonants should occur after s. Let us consider duration: Byrd (1994) finds that in #sk, /s/ has the longest duration and /k/ the shortest compared to both s#k and sk#. If the short duration of C2 can be generalized to other #sC clusters, then segments with robust internal cues should be favoured in C2 position. Liquids should be the most optimal, followed by nasals; stops should be the least optimal.

(4) shows, by contrast, that s+stop > s+nasal > s+lat > s+rhotic (= is more harmonic than). The favoured profile in sC clusters is opposite to that for branching onsets; in the latter, obstr+liq > obstr+nas > obstr+stop. This is not unexpected on a structural account if all sC clusters are head-final, unlike branching onsets. If C2 is the onset head in sC, it should respect the patterns holding of single onsets. Since obstruents are the optimal onsets (Clements 1990), a parallel should be observed between obstruents in C1 position in branching onsets and stops in C2 position in sC (not fricatives as well, due to the preceding s (Wright 2004)).

I propose that the C1/C2 asymmetry in branching onsets vs. sC clusters is best captured if s in sC is a coda. In Italian, medial sC clusters are syllabified as coda+onset (Chierchia 1986, Kaye 1992): [pás.ta], *[pá:sta] 'pasta' vs. [ká:pра] 'goat'. If sC clusters are universally syllabified in this fashion, then their profile should respect the preferences observed across languages for optimal syllable contact. Syllable contact will of course favour C2 with lower sonority: Vs.TV > Vs.NV > Vs.IV > Vs.rV. As C2 increases in sonority, the cluster prefers to be syllabified as a branching onset, but if this option is simply not available for sC clusters, then higher sonority sC clusters will be forbidden, regardless of their position in the word.

Under the coda+onset analysis of sC adopted here, (4) parallels Fleischhacker's typology in (3). (3) shows that sC prefers prothesis when C2 has lower sonority. As the sonority of C2 increases, prothesis will result in poor syllable contact; thus, anaptyxis will be a better repair.

Finally, the coda+onset account of sC predicts that languages should treat s+son and fric+son differently in epenthesis, as only the latter can form branching onsets. By contrast, Fleischhacker's perceptual account predicts that they should pattern the same: she predicts more anaptyxis in stop+son than in fric+son, whether or not the fricative is s. However, languages distinguish among fricatives in cluster repair: fricatives other than s pattern with stops in preferring anaptyxis (e.g. Farsi (Karimi 1987)), as predicted under syllable contact.
(1) Branching onset:  
\[
\begin{array}{c|c|c|c|c|c}
O & N & s & p \\
\end{array}
\]
(2) sC cluster:  
\[
\begin{array}{c|c|c|c|c|c}
O & R & n & s & p \\
\end{array}
\]
(heads are underlined in (1) and (2))

(3) more  
\[
s+\text{stop} < s+m < s+n < s+l < s+r < s+\text{glide} < \text{stop+son} \quad \text{more prothesis}
\]
\[
\begin{array}{c|c|c|c|c|c}
\text{Egyptian} & \text{Hindi} & \text{Kazakh} & \text{Farsi} & (\text{Catalan}) & \text{Wolof}
\end{array}
\]
(Parentheses: Catalan draws a division between \text{s+rhotic} and \text{s+glide}, but only prothesis is attested.)

(4) Initial sC clusters:
\[
\begin{array}{|c|c|c|c|c|c|c|c|}
\hline
s+ & \text{Spanish} & \text{French, Acoma} & \text{Greek} & \text{English} & \text{Dutch} & \text{German} & \text{Russian} \\
\hline
\text{stop} & * & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
\text{fricative} & * & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
\text{nasal} & * & ✓ & ✓ & (*) & ✓ & ✓ & ✓ \\
\text{lateral} & * & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
\text{rhotic} & * & ✓ & ✓ & ✓ & ✓ & ✓ & ✓ \\
\hline
\end{array}
\]
(Parentheses: \text{s+nasal} is marginal in Greek; \text{s+rhotic} is licit in some Dutch dialects.)

References


