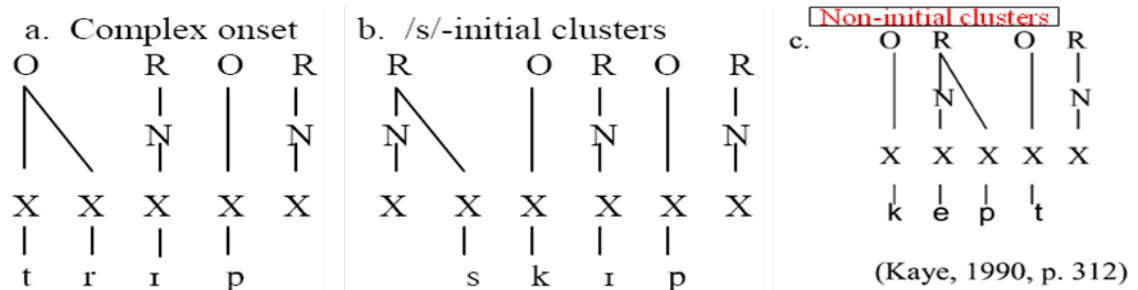


## Parameter setting in the acquisition of consonant clusters by phonologically delayed children

The present study examines the much studied yet poorly understood relationship between the acquisition of initial complex onset clusters (1a), /s/-initial clusters (1b), and non-initial clusters (1c). Pan & Snyder (2004) took the Government Phonology (GP) framework and proposed the following structures for the three types of consonant clusters.



In this analysis, to produce non-initial clusters, a child must know that rhymes can branch. To produce /s/-initial clusters, a child must know that (i) rhymes can branch, and (ii) the nuclear position before /s/ is empty. By contrast, a child must know that onsets can branch in order to produce onset clusters. Adopting a parametric approach, Pan & Snyder (2004) proposed that production of the three types of consonant clusters requires the proper setting of three binary parameters [+/- Branching onset (BO), +/-Branching rhyme (BR)] and [+/-Magic empty nucleus (MEN)], with the negative values as defaults. Specifically, the production of onset clusters require [+BO], /s/-initial clusters require both [+BR] and [+MEN], and non-initial clusters require [+BR]. Two predictions follow:

- (1) The acquisition of /s/-initial clusters is independent of the acquisition of onset clusters.
- (2) The acquisition of /s/-initial clusters is systematically related to the acquisition of non-initial clusters. Specifically, /s/-initial clusters should never be acquired prior to non-initial clusters, because the latter only require [+BR].

In this study, these predictions are tested in 20 English-speaking children with phonological delays (mean age = 4;9). Each child was asked to name 64 pictures of target words containing the three types of consonant clusters as well as singleton consonants. Results were summarized in the table below. In support for prediction (1), seven children were able to produce onset clusters, but never produced /s/-initial clusters, and four children had the opposite pattern. Consistent with prediction (2), six children produced non-initial clusters but were unable to produce /s/-initial clusters. We conclude that a parametric approach is applicable to the acquisition of consonant clusters in children with phonological delay.

Parameter settings	Onset clusters	/s/-initial clusters	Non-initial clusters	Number of Children
[-BO, -BR, -MEN]	NO	NO	NO	4
[-BO, +BR, -MEN]	NO	NO	YES	1
[+BO, -BR, -MEN]	YES	NO	NO	2
[+BO, +BR, -MEN]	YES	NO	YES	5
[-BO, +BR, +MEN]	NO	YES	YES	4
[+BO, +BR, +MEN]	YES	YES	YES	4