Acta Linguistica Academica Vol. **67** (2020) 1, 73–89
DOI: 10.1556/2062.2020.00006

Branching onsets 2.0

Sašo Živanović
University of Ljubljana
saso.zivanovic@guest.arnes.si

Abstract: This paper proposes a novel representation of branching onsets within the framework of Government Phonology 2. They are argued to be complex onset phrases, where the second member is directly embedded within the first and controls its head. The system predicts that for fricatives, the ability to become the first member of a branching onset depends on their place of articulation. In particular, [s]-like fricatives (S) are predicted to lack this ability, thereby explaining Kaye's (1992) empirical generalization that SC clusters are never branching onsets.

Keywords: phonology; branching onsets; sibilants; places of articulation; hierarchical structure

1. Introduction

In Government Phonology 2 (GP 2), phonological representations are binary hierarchical structures familiar from contemporary generative syntax; phonological domains are complex nuclear phrases (NPs), recursively built out of smaller NPs and onset phrases (OPs) (Pöchtrager 2006). In the present paper, I investigate the option of directly embedding an OP within another OP,[1] proposing that branching onsets (as understood by Standard GP) are in fact a particular subclass of complex OPs.

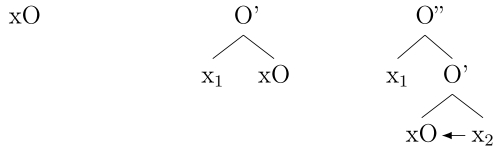
2. A brief introduction to GP 2

An onset head (xO) may project up to twice, each time merging with a non-head skeletal point (the complement). The number of projections determines the manner of articulation, (1). Terminal nodes may be **annotated** by a single element (|I|, |U| or |L|). Unannotated non-head skeletal points may **m-command** or **control** the head. An m-commanded head gains length; control (graphically represented by a straight arrow, as in (1c)) has no

[1] Direct OP-within-OP embedding is also explored by Neugebauer (2016); Voeltzel (2016) (within GP 2) and Mutlu (2020) (Valency Phonology).

interpretive function, it is rather a formal device for preventing undesired m-command relations, via (A1).[2,3] (Pöchtrager 2006)

(1) a. 0-layered (approximants) b. 1-layered (fricatives) c. 2-layered (stops) (GP 2.0)



(A1) Every unannotated non-head skeletal point must be **licensed** by exactly one of the following licensing mechanisms:

a. A controlling skeletal point is licensed.

b. An m-commanding skeletal point is licensed.

(adapted from Pöchtrager 2006, §2.3.2.3)

From Živanović & Pöchtrager (2010), I adopt the notions of **c++command** (D1) and **island** (D2), to be used in §3, and their formal requirements on m-command (A2). Note that the directionality of their m-command is reversed with respect to Pöchtrager (2006, 68). The change is merely cosmetic and applied to yield representations where the source of a relation c++commands its target, rather than vice versa. We shall apply the same reversal in the case of the control relation in §3. To facilitate reading the paper, I use the reversed direction (of both m-command and control) even when quoting authors using the original direction – a reader familiar with GP 2 had noticed the reversal of control in (1c).[4] Note that the reversal also exchanges the meanings of m-commander and m-commandee, and controler and controllee.

[2] The issue of linearization of phonological trees is far from settled in GP 2. For the sake of concreteness, I assume that the complement is linearized to the right of the projecting node if and only if the latter is controlled. This unifies Pöchtrager's original linearization of OPs with the linearization of (Putonghua) NPs proposed by Živanović & Pöchtrager (2010), while setting up the correct stage for the proposal presented in §4.

[3] Structures presented in this paper should be regarded as underspecified with respect to voicing and lenis–fortis distinction. In full structures, x_1 of a voiced obstruent would be annotated by |L|, and x_1 of a fortis obstruent would m-command xO (for details, see Pöchtrager 2006).

[4] Here is the complete list of quoted structures adapted for directionality: (1c), (2b–c), (3) and (4a).

(D1) Node α **c++commands** node β iff (a) α c-commands β, or (b) α is the highest terminal in the maximal projection immediately containing α, and α's mother c-commands β (informally, under special conditions we are allowed to "go up twice").
(Živanović & Pöchtrager 2010, 366)

(D2) Let *R* be a binary relation between nodes. A constituent is an ***R*-island** iff it is the smallest constituent containing the source of some instance of *R* and its c++commanding domain. (generalized from *ibid.*, 369)

(A2) **M-command** is a binary relationship between two terminals, an m-commander and an m-comandee.

a. Only non-heads can be m-commanders.

b. Only heads can be m-commandees.

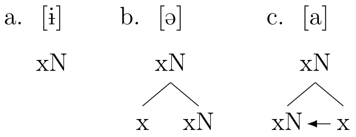
c. The m-commander must c++command the m-commandee.

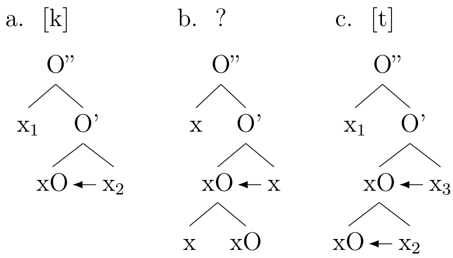
d. An m-commander can m-command only once. (*ibid.*, 366–367)

In Pöchtrager (2006), control may only apply between the head (xO) and its first complement (x_2) in a two-layered OP (1c), but the relation finds further utility in proposals eliminating the element |A|, whose function (in the Revised Theory of Elements (Ploch 1999), openness in vowels and coronality in consonants), is taken over by an **adjunction** structure, informally a "split" head, where a (terminal) head and another node are merged into another instance of the same head, as in (2b)–(2c) and (3b)–(3c).[5] Živanović and Pöchtrager (2010) propose the structures in (2) as representations of (Putonghua lexical) vowels [ɨ], [ə] and [a]; note that [ə] and [a] differ only by the presence of control in the latter.[6] Kaye and Pöchtrager (2013, 60) use controlled adjunction to encode coronality (3c). (The absence of (3b) will turn out to be crucial in §5.)

[5] The original definition of adjunction (Pöchtrager 2006, 165–167), stated in the framework employing |A|, allows both adjunction to a head $[_{xH}$ xH{A} x] and a non-head $[_{x}$ x{A} x]. Both head-adjunction and x-adjunction are only allowed when the split node is annotated by |A|, which functions as a place definer in all instances of adjunction in Pöchtrager (2006). As we will reject place definers in non-head positions in §3 (1c), we have no use of x-adjunction and thus assume it does not exist.

[6] Note that while (2b) is illicit as it violates (A1), it is grammatical in Živanović & Pöchtrager's (2010) system, who abandon (A1) and implement the licensing requirements by a phonological Binding Theory. As the present paper deals exclusively with consonants, I will not pursue the issue here. Further research is needed to unify the status of m-command in Pöchtrager (2006), where only unannotated non-heads may m-command and always transfer length to the m-commanded head, Živanović & Pöchtrager (2010), where annotated non-heads may m-command as well, transferring their melodic properties, and the present proposal, specifically §5, where m-command within a complex onset head contributes to the place of articulation.

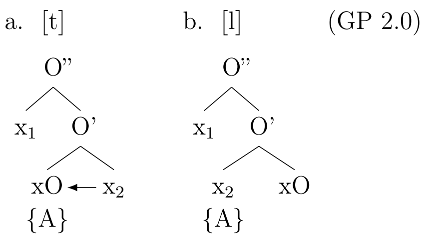
(2)


(3)


3. Control

In general, Pöchtrager (2006) implicitly follows (A3), the only exceptions being his representations of [l] and [s]. For example, to differentiate between [t] (4a) and [l] (4b), which are both stops[7] and must therefore be represented by two-layered structures, the place-defining |A| is assumed to annotate x_2 in [l]. (Here, we switch back to the old system employing |A| for a moment.) As (A3) is clearly a desirable interpretive principle, I will assume it holds without exceptions and search for an alternative representation of [l] (and [s] in §5). The idea is to assume that stopness is the interpretation of a controlled head rather than a specific number of layers in an OP. This changes nothing for plosives, whose head is already controlled, but opens up the possibility of representing [l] by (5).

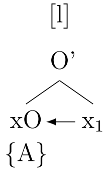
(A3) Place of articulation is determined by structure and melodic content of the xO head.[8]

(4)


[7] Assuming that [l] is a stop is obviously not uncontroversial, but widely accepted in GP literature, see e.g., Harris (1994); Jensen (1994); Harris & Lindsey (1995).

[8] A principle essentially identical to (A3) is assumed by Mutlu (2020).

(5)

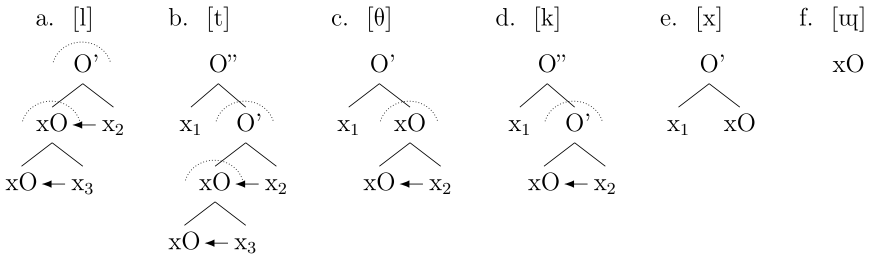


(GP 2.0 backport of the new proposal)

To arrive at the final form of our new characterization of stopness (A4), we must switch back to the |A|-less system. In particular, remember that coronality is encoded as controlled adjunction (3c). (6) shows several structures (without any annotations) generated by our system.[9] Clearly, when xO is split (6a–c) only the control of the upper xO (6a–b) induces a stop interpretation. (A dotted arc is a graphical representation of a control island, see (D2), a concept which we will use below.)

(A4) An OP is interpreted as a stop iff its non-split or outer xO is controlled.

(6)



The new system allows for a simple characterization of obstruents vs. sonorants. The reader is invited to check that (A5), which relies on (D1)–(D2) from §2 and the definition of a **mainland** node in (D3) below, correctly characterizes (6b–e) but not (6a) and (6f) as obstruents. In all the cases, the mainland skeletal point is x_1; (6f) fails to satisfy the obstruency condition as it contains no non-head skeletal points at all.

(D3) A node is a **mainland** node iff it is not contained in a control island.

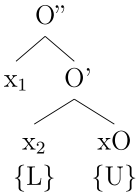
(A5) An OP is an obstruent iff it immediately contains a mainland non-head skeletal point.[10]

[9] A reviewer points out that some of the structures in (6), e.g., (6c) and (6d), are very similar, although the corresponding segments do not exhibit any real phonological similarities. The issue can only be answered by making explicit claims about the possible effects that phonological processes can have on the proposed structures, a task that must be left to further research.

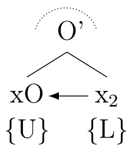
[10] Note that the mainland skeletal point of an obstruent is precisely the node responsible for length alternations discussed in Pöchtrager (2006). For sonorants, and [l] in

To adapt Pöchtrager's (2006, 87) representations of nasals, for example (7), to our new encoding of stopness (A4), we need to introduce a control relation targeting (the upper) xO. All existing applications of control work under the assumption that a node can only control its sister, thus the only possible controller of xO in (7) is x_2. Furthermore, to make [m] a sonorant by (A5), the control island created by this relation (O') must in fact encompass the entire OP. In other words, nasals are single-layered structures, like (8). By (A3), |U| must annotate xO. The element |L| can therefore only annotate x_2. Structure (8) thus violates the requirement that controllers be unannotated.

(7) [m] (GP 2.0)



(8) [m] (rejected)

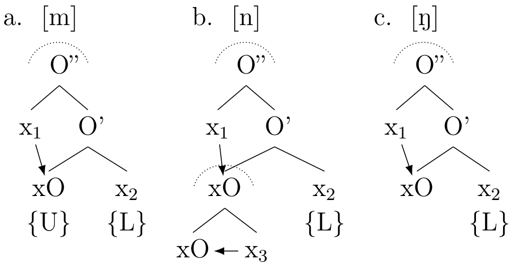


I propose to resolve the issue by unifying the geometric conditions on the application of control and m-command. Until now, we have worked with the assumption that control only applies under sisterhood, which is a special case of c++command. Živanović and Pöchtrager (2010, 58) assume that the source of an m-command relation must c++command its target. Adopting the same requirement for control allows us to propose structures in (9) as representations of nasals, yielding the correct characterization of nasals as stops by (A4) and as sonorants by (A5), and offering a clear condition on the interpretation of element |L| as voicing vs. nasality: |L| is interpreted as voicing iff it annotates a mainland node.

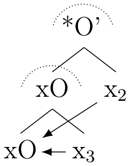
The relaxed geometric condition on control opens up the possibility of controlling a head more than once (10), which we explicitly prohibit to avoid overgeneration. The final set of requirements on control is given in (A6).

particular, however, it is unclear how Pöchtrager's analysis of fortis–lenis distinction carries over to the new system. The problem is twofold. First, sonorants do not have a mainland skeletal point, so how can a lenis [l] contribute length to the preceding nucleus? Second, if an entire sonorant is a control island, how can m-command from the nucleus penetrate it to produce a fortis consonant? In fact, the second problem first arises when Živanović and Pöchtrager (2010) introduce the concept of an island, and is compounded by Kaye & Pöchtrager's (2013, 60) representation of coronality as controlled adjunction. Further research is needed to unify the approaches; see also footnote 6.

(9)



(10)



(A6) **Control** is a binary relation between two nodes, a controller (the source) and a controllee (the target).

a. A controller must be an unannotated terminal.

b. A controllee must be a head.

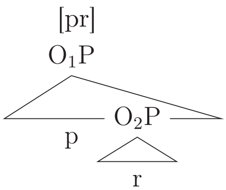
c. The controller must c++command the controllee.

d. A controllee may only be controlled once.

4. Branching onsets

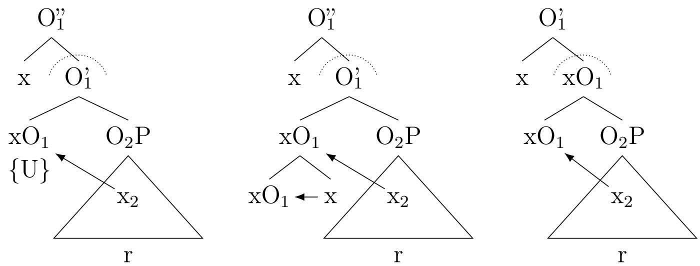
The hierarchical nature of phonological representations in GP 2 provides the option to create a consonant cluster by directly embedding an OP within another OP. Let us assume that the representation of a branching onset O_1O_2 is a complex OP such that O_2P is directly embedded in O_1P, (11). The assumption is in accord with both Standard GP, where O_1 is the head of the O constituent, and other OP-within-OP proposals (Neugebauer 2016; Voeltzel 2016; Mutlu 2020).

(11)



Given the possibility that the controller and the controllee are in a c++command but not c-command relation, see (A6c) and (D1), a head may be controlled from within an embedded OP (12). In the case of a simplex (12a) or upper (12b) head, the outer OP in such a configuration is a stop by (A4). In case of a lower head (12c), control contributes to the place of articulation, by (A3).[11]

(12) a. [pr] b. [tr] c. [θr]



Assuming (A7) then explains the well-known observation that any stop is a possible O_1 and predicts that only fricatives at certain ("controlled") places of articulation may occur as O_1.[12]

(A7) Branching onsets O_1O_2 correspond to complex onsets O_1P in which (any instance of an) xO_1 is controlled from within the embedded O_2P.

Note that all our assumptions were either adopted from the existing literature (§2) or motivated exclusively on the basis of simplex onsets (§3). In particular, (A7) does not extend or modify our theoretical apparatus in any way: (A7) **requires nothing**, as it is nothing but a formal characterization of branching onsets.

[11] Previous uses of adjunction follow Pöchtrager (2006, 165–167) in only allowing adjunction of non-head skeletal points. Structure (12c), containing an adjoined maximal projection (O_2P), forces us to relax this requirement. I believe this to be a good development, as it further likens an adjunction to a projection (which can take a phrase as the complement), the first step being the decision to abolish x-adjunction (see footnote 5).

[12] Note that if the effect of control on linearization of trees described in footnote 2 is on the right track, OP embedding "without control" will result in the embedded OP being linearized to the left of the outer OP. Further research will show whether such complex OPs correspond to coda–onset clusters, one other option being that OP embedding without control is ungrammatical.

The control relation between x_2 and xO_1 in (12) creates a control island O_1'/xO_1, which contains O_2P. By (A5), O_2P must therefore be a sonorant, a prediction that is obviously borne out, although it is admittedly not restrictive enough. For example, the system does not predict that nasals are a less common O_2 than liquids, or that [tl] is ungrammatical in many languages.[13]

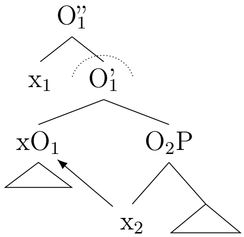
Let us consider the internal structure of O_2P. In order to control xO_1, x_2 must be unannotated (A6a) and it must c++command xO_1 (A6c). By (D1), the latter is possible only if it is the highest terminal of O_2P, as shown in (13). This is indeed the case for [l] (6a), the nasals (9) and [r] (14),[14,15] all possible O_2s. Furthermore, note that (A6) correctly allows their x_2 to control both xO_1 (to create a branching onset) and xO_2 (to make it a stop or contribute to its place of articulation).[16]

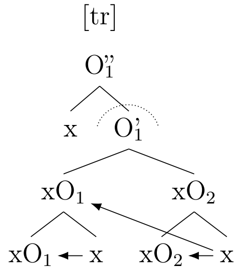
[13] The restricted cross-linguistic and intra-language distribution of consonant nasal (CN) clusters and [tl] does not negate the fact that they are grammatical in some languages and that analyzing them as bogus clusters (in Standard GP, the only remaining option if one rejects the branching onset analysis) cannot be correct, as it predicts any word-initial cluster to be grammatical (cf. Scheer 2004, I5, II6), which is not the case in all such languages. For example, Slovene allows #[tl] and #CN, e.g., [tla] 'floor' and [kmet] 'farmer', but not #RT, *[rdet͡ʃ] [ərdet͡ʃ] 'red'. Furthermore, lumping all languages together, the sets of consonants that can function as an O_2 and that can become syllabic largely coincide (for some languages, arguably Slovene, the sets of O_2s and syllabic consonants coincide even within the language itself), and the latter set certainly includes nasals (cf. Szigetvári 1999, §6.3.1).

[14] The tentative representation of [r] is adapted (by adding the control relation between the lower head and its complement) from Pöchtrager (2006, 168).

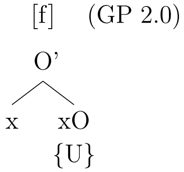
[15] Representation (14) illustrates another difference to GP 2.0: a skeletal point may control more than once. Technically, this is achieved by requiring licencing by exactly one licensing **mechanism** in (A1). It is yet unclear to me whether one can find individual instances of control from a single source, or the controller must control all the nodes it can, as in (14).

[16] A reviewer raises an important question about unbounded recursion. Does the system allow OP within OP within OP etc.? If so, should it? The short answer is that is does, although it probably should not. The long answer is threefold. First, GP 2.0 has always allowed unbounded recursion, or rather, the implicit prohibitions against OP-within-OP and two-NPs-within-an-NP (Pöchtrager 2006, §3.2, 99) are (though they do their job) completely ad hoc. Second, the present paper is merely a beginning of research into OP recursion – for example, embedding without control, possibly resulting in coda–onset clusters, is not investigated – so it is probably too early to make any general claims on what prevents unbounded recursion. Third, the maximum reach of c++command might contribute to the limit of control-supported recursion found in branching onsets.

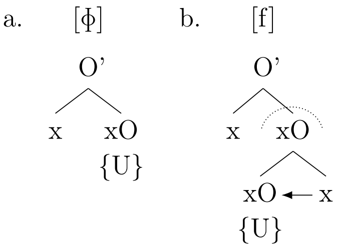
(13)


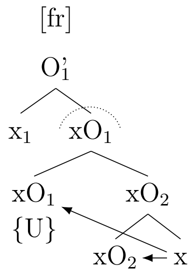
(14)


Turning to O_1, [f] seems to present a problem. Structure (16) (Pöchtrager 2006, 66) contains no control relation. If we adopted it, we would predict, contrary to the fact, that [f] cannot occur as O_1.

(15)


We can, however, turn the seeming problem into an advantage, by assuming that the simplex head xO{U} only represents the **bi**labial place and assign to labio**dentals** another, more complex representation: our new representation of [f], (16b), contains control, so we predict [f] to be a possible O_1, as shown in (17).

(16)


(17)


While (16b) contains a control relation, (16a) does not. We thus predict that [ɸ] cannot occur as O_1. Any potential falsifiers of this prediction will be found among languages with both [ɸ] and/or [β] and branching onsets. I found four. Kaingang and Itelmen straightforwardly corroborate the prediction; the data is provided in the rest of the section. In Tuscan Italian,[17]

[17] I am grateful to Laura Bafile and Shanti Ulfsbjorninn for bringing this data to my attention.

[ɸ]R and [β]R clusters are derived from what Ulfsbjorninn (2017) convincingly argues to be branching onsets ([ˈbruːxo] 'worm' ∼ [iˈβruːxi] 'the worms', [ˈplakːa] 'plaque' ∼ [laˈɸlakːa] 'the plaque') by the synchronic lenition process known as Gorgia Toscana. Clearly, the issue requires further research; I suspect these clusters are represented with a stop as the outer OP, as in (12a), but that as an effect of lenition, the control relation targeting xO_1 is not interpreted. Ewe provides several apparent lexical counterexamples: [ɸle] 'to buy', [ɸlatsa] 'rough' and [βli] 'to struggle' – this is a complete list, compiled from Warburton et al. (1968) and Dzablu-Kumah & Claudi (2006). However, a closer inspection of Ewe phonotactics reveals a number of mysteries, such as the fact that the only sC clusters are [sr] and [sl], confirmed by English loanword adaptation (e.g., *school* → [suku]; cf. Wornyo 2016), which goes against Goad's (2012) typology of word-initial sC clusters (specifically, if a language has s + rhotic clusters, it should have all sC clusters). The best conclusion I can draw at the moment is that the apparent branching onsets in Ewe are in fact bogus clusters.

Based on Jolkesky (2009, 676–681), (18) paints a rough picture of the Kaingang consonant system.[18,19] Details aside, the list of possible branching onsets (19a) (Jolkesky 2009, 682) is not particularily surprising.[20] Crucially, [ɸɾ] is not attested (19b). The Kaingang–Portuguese dictionary (Wiesemann 2011) confirms the situation.[21]

(18) a. [k], [p], [t], [c], [ʔ] c. [ɸ], [ç], [s], [h] (Kaingang)
b. [g]∼[ŋ], [b]∼[m], [d]∼[n], [ɟ]∼[ɲ] d. [w], [j], [ɾ]

(19) a. [kɾ], [pɾ], [gɾ], [bɾ]
b. *[ɸɾ]

[18] Kaingang is a Gê language spoken by about 30.000 people in southern Brasil. It has five major dialects (Wiesemann 2011, 8). Jolkesky (2009) describes the speech of Cacique Doble Indigenous Area, near the Alto Uruguay river basin, in Rio Grande do Sul, belonging to the Southeast dialect.

[19] See Henry (1948) for an alternative view on Kaingang phonology.

[20] Note the absence of [tɹ]. Given that Kaingang /r/ has several realizations ([ɾ], [ɹ], and [l]; cf. Jolkesky 2009, 681), it is most likely analogous to the absence of [tl] in English.

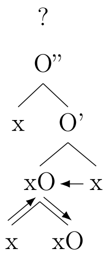
[21] According to Wiesemann (2011), Kaingang has no [ɸ], but rather [f]. I attribute this to dialectal differences and assume there is a close (enough) historic correspondence between dialects with [ɸ] and [f] for the dictionary data to be relevant for our test.

The problem with investigating Itelmen[22] without access to a native speaker is that its orthography does not distinguish between bilabials and labiodentals:[23] both [ɸ] and [f] are written as “ф”, and both [β] and [v] are written as “в” (Cyrillic script). Furthermore, (phonologically relevant) sources are scarce and the language is almost extinct. Luckily, however, **all** word-initial clusters that look like proper branching onsets occur in Russian loanwords. Thus, when faced with (20), the only potential counterexamples to our prediction in a 4,000-word dictionary (Volodin & Halojmova 1989), we can be confident that they are pronounced with a labiodental.[24]

(20) a. власт (Russian *власть*) ‘rule, authority’ (Itelmen)
b. флаг (Russian *флаг*) ‘flag’

5. The representation of [s]

While the gap (3b) within the (melodically empty) places of articulation might at first sight appear worrisome, the situation is in fact just the opposite. First, notice that (3b) violates (A1), so it is actually illicit. The real gap is (21), where the non-head terminal within the adjunction is licensed by m-commanding.

(21)


[22] Itelmen is a Chukotko-Kamchatkan language, which was spoken on the Kamchatka peninsula in Russia, but is now virtually extinct, having had less than 100 speakers in 1993 (https://en.wikipedia.org/wiki/Itelmens; accessed February 24, 2019).

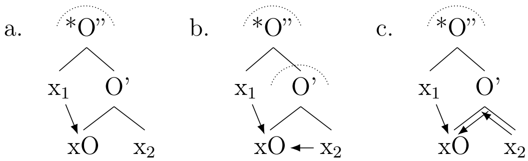
[23] https://www.omniglot.com/writing/itelmen.htm

[24] Two reviewers point out that the Russian loanwords in Itelmen might be treated as unnativised items, so that Itelmen might not have branching onsets at all, and possibly no labiodental fricatives either. In this case, the prediction would be corroborated “vacuously.”

Now, given the fact that fricatives occur at more places of articulation than stops, it seems sensible to assume that the complex head in (21) does in fact correspond to a place of articulation, but that this place is not available to stops. A possible formalization of the intuition is given in (A8).[25]

(A8) A structure containing an m-command island within a control island is illicit.

While further research is needed to fully explore the consequences of (A8), note that (A1), (A6d) and (A8) jointly entail that a head may only be controlled by the closest unannotated non-head skeletal point, as exemplified in (22), further restricting the expressive power of the system.

(22)


Besides the velar [x] and dental [θ], there is another obvious candidate for a melodically empty fricative: [s].[26] I thus propose (23b) as the representation of [s].[27] Most importantly, as (23b) contains no control relation, (A7) predicts that [s] cannot occur as the first member of a branching onset, thereby explaining Kaye's (1992) empirical generalization that sC clusters are not branching onsets.[28]

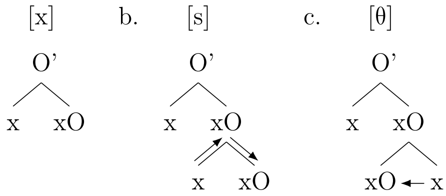
[25] As the sets of places of articulation of plosives and affricates seem to be complementary (Backley 2011, §3.8), an alternative route might be to explore the option that (21) represents an affricate.

[26] For example, revising Harris's (1994, 124) representation of [s] (|hR|) to |AH| and removing elements absent in GP 2 leaves it with no melodic content.

[27] Given (23b), we actually need to say that the adjunction structure itself, controlled or not, corresponds to coronality. The m-command between x_2 and xO fine-tunes the place of articulation, in accordance to (A3). See also footnote 6.

[28] Kaye (1992) bases his empirical generalization that sC clusters cannot be branching onsets on data from several languages. The logic of the argument is the same in all cases. I exemplify it using his data on the behaviour of negative prefix *in-* in European Portuguese. (i) In vowel-initial words, the prefix is realized as [in]: [in]*admissivel* 'inadmissible'. (ii) In single-consonant-initial words, the prefix is realized as [ĩ]: [ĩ]*pureza* 'impurity'. (iii) The same holds for a standalone [s]: [ĩ]*satisfeito* 'dissatisfied'. (iv) Branching onsets behave like simplex onsets: [ĩ]*tratavel* 'unsociable'. (v) The behaviour of sC clusters is unexpected: [inʃp]*erado* 'unexpected'. Ergo, sC clusters are not branching onsets.

(23) a. b. c.



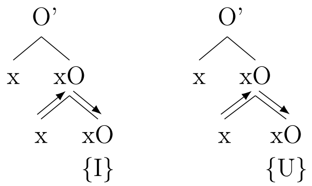
Considering structures containing annotations within the (possibly complex) head in the light of (A1), (A6a) and Pöchtrager's (2006, 68) requirement that only unannotated non-heads may participate in m-command, it is clear that precisely two of them (24) contain m-commanded adjunction and are thus expected to have the same magic[29] property as (23b). The total number of magic fricatives predicted by our approach is thus three, which corresponds perfectly to empirical data: the only magic fricatives (modulo voicing) are [s], [ɕ] and [ʃ] (S), Polish being an example of a language having all three.[30]

[29] After establishing the empirical generalization that sC clusters are not branching onsets, Kaye (1992) proposes a representation of sC clusters as coda–onsets. In his analysis, [s] is then a rhymal complement of an empty nucleus. As none of the two existing clauses of the phonological Empty Category Principle (ECP) are able to allow this (obviously unpronounced) nucleus to be uninterpreted, Kaye invents a third, ad-hoc clause of ECP and dubs it **magic licensing** "as a constant reminder that it is a pure stipulation in need of an explanation".

I decide to call [s] and other [s]-like fricatives (24) "magic" partly to remember Kaye's reminder (which still applies) and partly to avoid the term sibilant, as it is unclear to me whether the sibilants and the magic fricatives are one and the same class, the question being whether palato-alveolar and retroflex sibilant are phonologically one and the same object. If the classes indeed coincide, then m-command within adjunction is interpreted as sibilancy.

[30] Polish [ʃ] is sometimes argued to be retroflex (see e.g., Hamann 2004). Given (a) the acoustic grounding of elements in GP (Harris & Lindsey 1995) (b) similar acoustic (lowering) effect of palato-alveolars and retroflexes (Hamann 2004, 57) (c) substantial inter-speaker variation in spectral shape of fricatives in general (Ladefoged & Maddieson 1996, 173–176), I assume that the interpretation of structure (24b) can range from palato-alveolar to retroflex, at least in languages that do not contrast the two places of articulation. Additional arguments in favour of phonologically equating the place of articulation of Polish [ʃ]/[ʂ] to e.g., English [ʃ] rather than Tamil [ʈ] are slight lip rounding (Ladefoged & Maddieson 1996, 154–155), which is a characteristic interpretive effect of |U|, and the absence of backwards-curling of the tongue tip (Hamann 2004, 53).

(24) a. [ɕ] b. [ʃ]



While I leave a specific proposal on the structure of SC clusters to further research, note that (23b) has a unique property of containing m-command within its head, which might be ultimately responsible for the magic ability of [s] to form a cluster with any consonant. Doubtlessly, however, other factors will need to be considered to fully explain the phonotactics of S (see e.g., Goad 2012).

6. Conclusion

In this paper, we have proposed a representation of branching onsets within the |A|-less version of GP 2. To achieve this, we first (re)encoded stopness (A4) and obstruency (A5) in terms of (somewhat redefined) control (§3). Branching onsets O_1O_2 were then characterized as complex OPs in which the head of the outer O_1P is controlled from within the embedded O_2P (§4). Finally, we have proposed representations of [s], [ɕ] and [ʃ] (S) corresponding to the gap in the places of articulation of stops (§5). As the proposed representations contain no control, the immediate prediction is that S cannot occur as the first member of a branching onset, explaining Kaye’s (1992) empirical generalization. While I believe this forms a big step in our understanding of SC clusters, their actual representation remains a further research question. I am confident, however, that the proposed representation of (the place of articulation of) S, being unique in containing m-command within the complex head, brings us closer to its resolution.

References

Backley, Phillip. 2011. An introduction to Element Theory. Edinburgh: Edinburgh University Press.

Dzablu-Kumah, Simon Wellington and Ulrike Claudi. 2006. Basic Ewe for foreign students. Köln: Institut für Afrikanistik, Universität zu Köln.

Goad, Heather. 2012. sC clusters are (almost always) coda-initial. The Linguistic Review 29. 335–373.

Hamann, Silke. 2004. Retroflex fricatives in Slavic languages. Journal of the International Phonetic Association 34. 53–67.

Harris, John. 1994. English sound structure. Oxford & Cambridge, MA: Blackwell.

Harris, John and Geoff Lindsey. 1995. The elements of phonological representation. In J. Durand and F. Katamba (eds.) Frontiers of phonology: Atoms, structures, derivations. Harlow: Longman. 34–79.

Henry, Jules. 1948. The Kaingang language. International Journal of American Linguistics 14. 194–204.

Jensen, Sean. 1994. Is ʔ an element? Towards a non-segmental phonology. SOAS Working Papers in Linguistics and Phonetics 4. 71–78.

Jolkesky, Marcelo Pinho De Valhery. 2009. Fonologia e prosódia do Kaingang falado em cacique doble. Anais do SETA 3. 675–685.

Kardela, Henryk and Bogdan Szymanek (eds.). 1996. A Festschrift for Edmund Gussmann from his friends and colleagues. Lublin: The University Press of the Catholic University of Lublin.

Kaye, Jonathan D. 1992. Do you believe in magic? The story of s+C sequences. SOAS Working Papers in Linguistics & Phonetics 2. 293–313. Reprinted in Kardela and Szymanek 1996, 155–176.

Kaye, Jonathan D. and Markus Alexander Pöchtrager. 2013. GP 2.0. SOAS Working Papers in Linguistics and Phonetics 16. 52–64.

Ladefoged, Peter and Ian Maddieson. 1996. The sounds of the world's languages. Cambridge, MA & Oxford: Blackwell.

Mutlu, Filiz. 2020. Embedding of the same type in phonology. In K. Nasukawa (ed.) Morpheme-internal recursion in phonology. Berlin & New York: Mouton de Gruyter. 181–206.

Neugebauer, Dániel Ernst. 2016. Adjacency in X-bar based phonology: Assimilation as structure. MA thesis. Pázmány Péter Catholic University.

Pöchtrager, Markus Alexander. 2006. The structure of length. Doctoral dissertation. Universität Wien.

Ploch, Stefan. 1999. Nasals on my mind. The phonetic and the cognitive approach to the phonology of nasality. Doctoral dissertation. SOAS, University of London.

Scheer, Tobias. 2004. A lateral theory of phonology. Vol 1: What is CVCV, and why should it be? Berlin & New York: Mouton de Gruyter.

Szigetvári, Péter. 1999. VC Phonology: A theory of consonant lenition and phonotactics. Doctoral dissertation. Eötvös Loránd University/MTA, Budapest.

Ulfsbjorninn, Shanti. 2017. Bogus clusters and lenition in tuscan italian. In G. Lindsey and A. Nevins (eds.) Sonic signatures: Studies dedicated to John Harris. Amsterdam & Philadelphia: John Benjamins. 278–296.

Voeltzel, Laurence. 2016. Morphophonologie des langues scandinaves: Hiérarchie segmentale et complexité syllabique. Doctoral dissertation. University of Nantes.

Volodin, A. P. and K. N. Halojmova. 1989. Slovar' itel'mensko-russkij i russko-itel'menskij. Leningrad: Prosveščenie.

Warburton, Irene, Prospur Kpotufe and Roland Glover. 1968. Ewe basic course. Bloomington, IN: Indiana University.

Wiesemann, Ursula Gojtéj. 2011. Dicionário Kaingang–Português, Português–Kaingang (2nd ed.). Curitiba: Editora Evangélica Esperança.

Wornyo, Albert Agbesi. 2016. English loanwords in Ewe: A phonological analysis. Journal of Literature, Languages and Linguistics 22. 42–51.

Živanović, Sašo and Markus Alexander Pöchtrager. 2010. GP 2.0 and Putonghua too. Acta Linguistica Hungarica 57. 357–380.