Turbid Government

Edoardo Cavirani*

12 June 2020

Abstract

In Government Phonology and its descendants, the Empty Category Principle controls the distribution of empty nuclei, which are allowed only if properly governed. One of the consequences of this is that sequences of empty nuclei should not exist. In this paper, I discuss a case in which such sequences do seem to exist: pseudo-empty silent nuclei properly governing empty nuclei in French. I argue that, despite appearances, the ban on sequences of empty nuclei still holds. This builds on the hypothesis that silent nuclear positions are not necessarily empty: they can be endowed with some phonological content, so they can properly govern. This distinction follows from the refinement of the symmetrical autosegmental association relation operated by Turbidity Theory: instead of a single symmetrical association between melodic and prosodic units, there are two independent relations - projection and pronunciation. Empty nuclei lack melodic content altogether, whereas silent phonologically non-empty nuclei only lack the pronunciation relation. Besides eliminating exceptions to proper government, this approach allows for the direct link between governing strength and representational complexity, as well as issues related to the visibility and the alignment of the melodic content of yers.

1 Introduction

Government Phonology (henceforth GP; Kaye et al. 1985, 1990b, Charette 1991, Harris 1994, Gussmann 2002) was developed around the 80s, when the power of transformational rules was being drastically reduced both in phonology and in syntax. The structural description of rules was gradually simplified, until it definitively disappeared. This resulted in the formulation of very basic rules that apply freely, minimally and cyclically until the affected representation complies with the requirements of well-formedness constraints, which, as a consequence, gained an increasingly important role.

In syntax, this tendency culminated in Government and Binding (GB; Chomsky 1981), where e.g. movement was formalised in terms of a very simple rule – *Move* α – that apply freely, its result being controlled by constraints such as barriers, Empty Category Principle (ECP), etc. The same still holds for minimalism (Chomsky 1995), where the free application of the one and only structure-building operation – *Merge* – is checked against interface constraints.

In phonology, the anti-rule movement produced autosegmental phonology (Goldsmith 1976). Also in this case, well-formedness constraints on representations took a prominent role. For instance, the application of the very simple

*This work is funded by the FWO Marie Skłodowska-Curie Actions - Seal of Excellence postdoctoral research grant nr.12Z7520N

rule associating tones to vocalic segments was triggered and controlled by constraints such as the Well-Formedness Condition, the Obligatory Contour Principle, the No-Crossing-Line Convention (Goldsmith 1976:26-27).[1]

From this moment on, phonological research developed along two parallel lines. On the one hand, the rule has been totally dismissed, the whole computational burden being taken by a system of constraints, which can be absolute, as in Declarative Phonology (Scobbie et al. 1996), or violable, as in Optimality theory (Prince and Smolensky 1993). On the other hand, frameworks such as GP and its descendants (e.g. strict CV; Lowenstamm 1996, Scheer 2004) shifted the focus on the representational component, retaining a system of absolute constraints modelled on GB – c-command, Minimality Condition, Projection Principle, Structure Preservation, ECP and Proper Government – and a sort of informally described simple association rule, of the kind of "and then the element spreads from the nucleus to the Onset" (Scheer and Kula 2018:235).[2]

In this paper, I address two of the constraints that GP inherited from the 80s - ECP and Proper Government -, as well as the computational component, namely the autosegmental phonology-based association operation relating melodic elements and root nodes. By analysing a case of ECP violation, I aim at showing that, as a matter of fact, such a violation is only apparent, and that, as a consequence, Proper Government can be retained in its original form, i.e. absolute, exceptionless and local. This is allowed by a redefinition of the association operation in terms of Turbidity Theory, an optimality theoretic approach to input-output mapping that decomposes the autosegmental symmetrical relation between melodic elements and root nodes into two independent relations - projection and pronunciation. This decomposition makes it possible to distinguish between truly empty nuclei, which shows no melodic content, and silent non-empty nuclei, which only lack the pronunciation relation (Cavirani and van Oostendorp 2017, 2019). The empirical ground against which these hypotheses are tested is represented by sequences of two unpronounced nuclei in French (Charette 2003). Crucially, these sequences are argued to violate the ECP, which requires that each word-internal empty nucleus must be properly governed by a following non-empty nucleus. I argue that this ECP violation is only apparent, as the second of these two silent nuclei is not really empty: it is endowed with phonological content, which, though, is not pronounced. Crucially, by virtue of reaching a sufficient amount of representational complexity, it is entitled to properly govern the preceding empty nucleus.

Besides eliminating apparent cases of ECP violation, the refinement of the empty category typology provides a solution to a set of interrelated formal issues of Proper Government, such as the unclear relation between representational complexity and lateral strength, the dubious status of parametrically determined lateral strength, and the behaviour of yers, which, despite being pronounced, cannot govern a preceding empty nucleus, nor another yer.

[1] As a matter of fact, the concept of constraint has actually been part of the theoretical phonology toolkit at least from the end of the 40s. See Cavirani (2010, 2012) for historiographical details.

[2] As explicitly claimed by Scheer and Kula (2018), "computation has not been a central focus of GP, nor could it be said that GP has provided major contributions to computational theory". On the other hand, computationally-oriented frameworks provided no major contribution to representational theory. For instance, Optimality Theory doesn't impose any specific restriction on the representations its computational system can digest. As a matter of fact, in such a framework, an attempt has been made to translate autosegmental representations in constraints (Golston 1996). In this case, representations are replaced by a set of markedness constraints, the latter providing a (partial) description of the former. Something similar holds also for Declarative Phonology, as it explicitly conceives of representations in constraints terms (Scobbie et al. 1996:687). Note, though, that neither of the last two models can do away with representational primitives such as features and prosodic units: the objects constraint-based (partial) descriptions are meant to replace are phonological structures.

2 On some formal issues of proper government

One of GP's most renown trademark are empty nuclei. Something similar was already around in the early 80s (Anderson 1982, Spencer 1986), but it is only with the advent of GP that such a device receives a thorough formalisation (Scheer and Cyran 2017). This parallels what happened in syntax, where, although the debate on empty elements can be traced back to the outset of generative grammar (Hartmann et al. 2008, Cavirani and van Oostendorp 2017), empty categories become a pretty standard feature of the generative theoretical toolkit with the development of GB (Chomsky 1981, 1982, 1986). In GB, the distribution of these categories is taken care of - technically *licensed* - by proper government, which licensed the empty categories/traces left back by movement only if governed/bound by an antecedent (or lexically head-governed; Lasnik and Saito 1984, Rizzi 1990. Proper government would basically allow for the recovery of the semantic content of the trace, and to derive a well-formed syntactic representation. Inspired by the Structural Analogy hypothesis, according to which the grammar displays the same mechanisms and structures in syntax and phonology (Anderson 1985, 1992, den Dikken and van der Hulst 2020), Kaye et al. (1990a) introduce proper government in phonology. As in syntax, proper government is meant to account for the distribution and empty categories, which in phonology usually translates in nuclei that are part of the phonological representation, but receive no phonetic interpretation: empty nuclei (EN). What is at stake is again the well-formedness of representations containing empty categories: EN need to be given the right to stay silent, namely, they need to be (p-)licensed. In GP, this right is granted via proper government, which is dispensed by a phonetically realised nucleus occurring in the following syllable. Something different needs to be said about final empty nuclei (FEN), as they are not followed by any audible nucleus. FEN are thus argued to be parametrically licensed. Besides FEN, two other special cases were recognized: EN that are enclosed within a interconsonantal governing domain (e.g. coda-onset sequences) or precede a s+C word-initial cluster (where they are *magically* licensed). The latter two cases have been addressed by a strain of research sprouting from GP, known as strict CV (Lowenstamm 1996, Scheer 2004), which gets rid of prosodic constituents and of the non-proper form of government, such as the one holding in interconsonantal domain and the one involved in magic licensing. As a result, the theory gaines in elegance and simplicity, and it apparently does not lose empirical coverage.

However, as recently pointed out e.g. by Bafile (2020), strict CV does actually show some difficulties in accounting for some generalisations, such as the one shown by syncope/apocope patterns in Finale Emilia dialects, where segmentally similar consonant clusters are repaired via epenthesis in some forms but not in others. For instance, a form such as /ˈsalØsØ/ 'willow' results in [ˈsalɐs], where an epenthetic piece of melody fills in the first EN. The very same cluster, though, emerges as it is in /ˈdolØsØ/ 'sweet': [ˈdols]. Here, the first EN stays silent, no matter whether the following EN is silent too. In strict CV, the difference between the two forms has been related to a representational difference between the relevant EN: whereas the one of the latter form is *really* empty, the one in which Ø alternates with ɐ is represented as a N with some floating melodic content, which would be associated to N, thus phonetically interpreted, only when governed. This representational difference allows to account for cases in which unpronounced nuclei alternate with more than one vowel, which hence needs to be lexically specified (see Passino (2013) for similar patterns in Emilian dialects). As discussed by Bafile (2020), an important ingredient of such an analysis is a further stipulation that says that "final empty nuclei can only govern nuclei that do not

possess any floating melody in the lexicon" (Scheer 2004:644). Without such a stipulation, the *empty-cum-floater* N would be incorrectly kept silent, as FEN would be strong enough a governor to license EN both without and with floaters. The same holds if the empty-cum-floater N were instead a true EN, as one might want to claim given the fact that Finale Emilia has only one type of epenthetic vowel. Given the predictability of the latter, it would seem unnecessary to store it in the lexical representation of the relevant forms. EN would thus be filled with the least marked vocalic segment. If this were the case, though, it would be hard to formally account for the fact that EN alternate with ɐ in one and the same consonantal environment only in a set of forms. Thus, it seems that in order to account for cases such as the one just discussed, it's necessary to keep both the stipulation on FEN government and a distinction between truly empty and empty-cum-floater N, or, as suggested by Bafile (2020), retreat from the bold EN-proliferating positions of strict CV towards the safer standard GP shores, populated by onset clusters and codas, and where the difference between ['salɐs] and ['dols] is due to the fact that only the former displays an EN, whereas in the latter, lateral and sibilant represent a coda-onset sequence. In her view, the problem is that "the formalism of strict CV theory and its conception of empty nuclei is not able to properly characterise the distinction between 'true' empty nuclei and alternating empty nuclei, that in fact are two different kinds of objects [but] are given exactly the same representation on the CVCV tier [and the] burden of differentiating between the two distinct objects is entirely shifted to the melodic level" (Bafile 2020:103).

In line with what observed by Bafile (2020), I argue that it is necessary to develop a more adequate formalisation of the difference between the various types of EN. Differently form her, though, I do not take position with respect to whether GP offers more adequate tools than strict CV. Rather, I propose a refinement of the representational technology that is compatible with both theories and improves on a few interrelated drawbacks, such as a) the arbitrary and diacritic-like character of the parametrised government strength of FEN, b) the inconsistent relation between representational complexity and government strength, and c) the *visibility* of empty-cum-floater N, also known as yers, which can be apparently distinguished by true EN, and detected by a following EN, thanks to the presence of the floater in the former.

The problem in c) should be already quite evident: floaters are argued to live in a specific tier, where there is no room for x, C and V, and is thus unclear how and why a floater should be private property of a specific root node, unless it gets associated to the latter, which happens by means of a phonological operation (linking/spreading). Thus, at the level of underlying representation, namely prior to phonological computation, EN are just EN, and a following EN shouldn't be able to discriminate whether there is a piece of melody floating around in a parallel tier or not. On the other hand, if there is a floater, and that floater is aligned with a specific N, then it would be hard to conceptualise the latter differently form any other filled N.

This brings us to one of the other drawbacks mentioned above, namely the inconsistent relation between the representational complexity of N and its governing strength, inherent to a model that assumes non-empty N, EN and empty-cum-floater N. In the GP-based literature, government strength is traditionally assumed to be proportional to representational complexity, as governees cannot be more complex that governors. Complexity, in turn, is a function of the number of elements making up the segment (Harris 1990). Building on this, Cyran (2008, 2010) develops a strength scale, where a three-way distinction is made between full vowels, schwas and EN. This scale is related to the distribution of onsets (T), complex onset (TR) and coda-onset (RT) sequences. For instance, he

observes that full vowels can be preceded by (i.e. they can *license*) T, RT and TR clusters, schwa by T and RT clusters, and FEN only by (a subset of) T. As claimed by Cyran (2008), "the status of schwa in this scale is symbolic, and simply means that it represents a 'prosodically weaker context than a full vowel'. A precise definition of schwa for the purpose of this scale is a matter of further research". I refer the reader to Cavirani and van Oostendorp (2017, 2020) for the development of a theory that attributes the different behaviour of full vowels and schwas to differences in terms of elements' internal complexity. Details aside, it is important in this context to stress the fact that the scale just referred to rests on the representational difference between the relevant segments, rather than with whether or not they are pronounced. This, together with the assumption that empty-cum-floater N are representationally more complex that EN, would predict that the former can properly govern the latter, no matter if they are not pronounced.

Note, though, that the pervasive direct relation between representational complexity and governing strength breaks down in word-final position, as rather than from the former, the latter is traditionally argued to follow from the setting of an ad hoc parameter. Some languages have this parameter turned on, so their FEN can properly govern. Others have it off, so their FEN cannot govern a preceding EN. This is a potential problem, or at least a mark on the theoretical elegance of GP-based frameworks, as such a parameter looks like a diacritic, namely as something that is not encoded in the module-specific phonological vocabulary. In this sense, it looks like a betrayal of the autosegmental mantra inspiring GP-related frameworks, according to which, given the right representation, a process would follow. It thus seems tempting to translate such a diacritic in more appropriate phonological terms, namely in representational terms. This would allow to tie the governing strength of FEN to their representational complexity, and the variation in FEN government strength across and within languages to representational variation, namely to the lexicon.[3] Finally, note that such a hypothesis would allow to reinterpret the deviation from the GP tenets according to which all word-final C are onsets proposed by Scheer (2004), who discusses cases in which word-final C behave like codas, and casts the difference in parametric terms. Also in this case, the different behaviour of word-final C could be reinterpreted in representational terms. For instance, one might say that the ones that behave like codas would be followed by FEN, whereas the ones that behave like onsets by nuclei that only appear to be empty, e.g. by empty-cum-floater N.

This brings us to a crucial aspect of the hypothesis defended so far. I argued that it is necessary to provide a formalism that allows to adequately distinguish between various kinds of EN, that empty-cum-floater N are suspicious objects, and that we should possibly not give up the direct relation between representational complexity and government strength, which would in turn allow us to get rid of FEN parameters. The key to bring all these pieces together is a formal and explicit distinction between *phonetic* and *phonological* emptiness, as this would allow to account for cases in which silence conceals complex phonological representations. From this perspective, empty-cum-floater N would be phonologically similar to full N, both in terms of melodic content and, as a consequence, of government strength. The difference would be a matter of phonetic interpretation: the latter are always pronounced, whereas the former are allowed to stay silent in particular circumstances, namely when properly governed. As I

[3]See Cavirani and van Oostendorp (2017, 2019) for examples from Dutch and Italian dialects showing how *phonetically* identical FEN have different effects on preceding consonants. See also John (2014), who claims that "varying degrees of degeneracy in empty categories is part of the representational arsenal supplied by Universal Grammar" and that "when languages use more than one type of empty nucleus, onset or coda, this distinction can be harnessed to contrast lexical items, in much the way that segmental contrasts are used".

discuss below, this difference in interpretability is encoded in their phonological makeup. Crucially, because of their phonological similarity, these two kinds of N show similar degrees of government strength. Were this correct, the direct relationship between representational complexity and government strength would be preserved. This would also hold for FEN, whose government strength would be a function of their melodic content, despite them not being phonetically interpreted. The parameter distinguishing between FEN that can and FEN that cannot properly govern could thus be conceived of in representational terms.

The formal tool for the distinction between *phonetically* and *phonologically* EN is provided by a specific take on the relation between melodic content and the root node, which refines the standard autosegmental association mechanism. This development goes under the name of Turbidity Theory (TT). In what follows, TT will be introduced, and applied to a case of so-called pseudo-emptiness in French (4). As will be shown, this development also allows for a more adequate formalisation of empty-cum-floater N, and to solve their alignment and visibility problem.

3 A turbid solution

Turbidity Theory (TT; Goldrick 2001, Van Oostendorp 2008, de Castro-Arrazola et al. 2015 is an optimality theoretic approach to faithfulness based on containment, which assumes an input-output relationship whereby the former is contained in the latter. The containment assumption of TT provides us with the tools to formally express the difference between *phonetic* and *phonological* emptiness, which in turn allows us to stick to the hypothesis of a direct relation between phonological complexity and government strength, and ultimately to the idea that *phonetically* empty N can properly govern. These tools are the two different relations linking melodic content and root nodes to each other, which derive from splitting the symmetric autosegmental relation assumed by GP-based models. Thus, rather than assuming that if an element α is associated to a root node x, x is associated to α, TT assumes two asymmetric relations. We have a projection relation expressing the lexical affiliation between melodic content and root nodes, and a pronunciation relation expressing the fact that the melodic content is phonetically interpreted in the relevant root node. Graphically, these relations are represented by arrows: an arrow pointing from the root node to the element stands for the projection relation, whereas an arrow pointing from the element to the root node represents the pronunciation relation. This is illustrated in 1, where representations are given that show no melodic content and no relation (x_1), only the projection relation (x_2), or both the projection and pronunciation relation (x_3). The former represents a EN, the latter a full N, and the middle one represents a empty-cum-floater N, henceforth renamed eN.

x_1	x_2	x_3
	$\downarrow$	$\updownarrow$
	|A|	|A|
Ø	Ø	[a]

Figure 1: Turbidity Theory representations

In TT, projection relations are part of the lexical representation of a morpheme, and cannot be altered because of containment and Consistency of Exponence (Van Oostendorp 2008). On the other hand, the pronunciation relations can be modified in the input-output mapping process. This results from the pressure exerted by structural constraints holding on surface representations.[4] I argue that the ECP and the related proper government can be conceived of as a kind of structural constraints evaluating the well-formedness of a surface phonological representation (similarly to what happens in syntax; see above). In our case, assuming a direct relation between representational complexity and government strength, proper government would behave like a constraints favouring surface representations where a nucleus lacking the pronunciation relation is followed by one which is representationally no less complex.[5] Note that, for this to work, TT relations must be included in the calculation of representational complexity. Thus, representational complexity would be a function of the number of elements, as well as of TT relations.

In 1, complexity would decrease from right to left. The rightmost nucleus is the most complex, and is endowed with a full government potential. The middle nucleus is slightly less complex, but it contains phonological material, and it can hence exert proper government. The leftmost nucleus is phonologically empty, which makes it incapable of governing.

Phonetically, the melodic content of the full N is faithfully interpreted, as expected. The phonetic interpretation of the other two N depends on the environment they happen to be in. If followed by a proper governor, they can stay silent, otherwise they are interpreted according to their phonological content: EN are assigned a default vowel (usually the less marked vowel of the language), while eN have their melodic content interpreted. Their *lack of* interpretation, thus, needs to be positionally licensed.[6]

Note that this approach provides a solution to the issues mentioned in the previous section. The problem of the visibility and the alignment of floaters in eN vanishes away, as there is no floater to start with. What was considered a floater, is now a piece of melody projected by the relevant root node. As such, it is integrated in the phonological representation, and it can thus be seen by the following N, which can discharge its government power. If the latter is missing, the melodic content of eN is given the chance to be heard: it gets its pronunciation relations and becomes audible. As for the parametrically determined government strength of FEN, this can now be transparently related to representational complexity. This implies a distinction between FEN and FeN: the former is phonologically empty, and cannot properly govern a preceding EN/eN, whereas the latter is endowed with some phonological content, and can properly govern a less complex N occurring on its left.[7] Note that the possibility to have silent N concealing different degrees of phonological complexity is supported by both diachronic and diatopic variation (Cavirani 2015, Cavirani and van Oostendorp 2019, Bafile 2020).

[4]These constraints replace the traditional markedness constraints, and refer to structural properties of the phonological objects alone. The idea is not to make any reference to the phonetic-grounded concept of markedness. See Boersma (2011) for discussion, and de Castro-Arrazola et al. (2015) for an application of TT involving OCP.

[5]See Polgárdi (1999), Harris and Gussmann (2002), Cavirani (2015) for attempts at translating GP mechanisms into constraint interaction, and Carvalho (2019) for a discussion of this possibility.

[6]The analysis would be similar to the one of final devoicing in Torres-Tamarit (2015), where "features are realised in the surface only if a pronunciation relation between them and root nodes is positionally licensed. Final devoicing is the result of not inserting a pronunciation relation between an obstruent in coda position and the feature [voice]". In our case, what needs 'positional licensing' is the *absence* of the pronunciation relation.

[7]The (lack of) pronunciation of FeN can be taken care of by a constraint ranking where a constraint favouring CV sequences, e.g. NoCoda, dominates a constraint penalising unparsed melodic content, e.g. Parse or Pronounce. Due to space limitation, it is not possible to discuss this point further. The interested reader is referred to Harris and Gussmann (2002) for a similar approach.

Another issue that can be solved by such an approach is represented by apparent sequences of EN, namely cases in which a EN seems to properly govern another EN. This possibility is in principle excluded by the ECP, which states that EN cannot be properly governed by a N that is itself p-licensed.[8] However, French seems to show such unexpected sequences, which leads Charette (2003) to loosen the otherwise absolute binarity and locality principles of GP. In what follows, I provide a TT-based solution that allows for keeping such principles. The price to pay is a refinement of p-licensing condition just mentioned: rather that p-licensing per se, what matter are its representational consequences, namely its adding up to the calculation of the complexity of a position, which, as I argued above, is tantamount to the the sum of melodic elements and TT relations.

4 Pseudo-emptiness and turbid government in Canadian French

In her account of vowel-glide alternation in French, Haworth (1994) introduces pseudo-empty categories, namely positions that share their melodic content with an adjacent position. This is shown in 2, where a representation in standard GP format is given of *confié* [kõfˈje] 'confided'. Due to an OCP ban on adjacent N sequences, the |I| element of the penultimate N spreads to the following onset empty position, whereas the N itself, by virtues of being properly governed by the word-final N, is silent.[9] Thus, by virtue of having some lexically defined melodic content, pseudo-empty categories resemble our eN, but, differently from the latter (and from EN), their content manages to escape government and gets interpreted in the adjacent consonantal position.

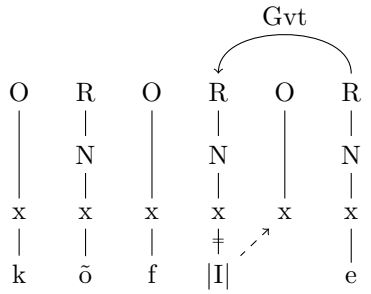

Figure 2: Gliding under proper government

Note that, as the spreading of |I| depends on the availability of a following onset, in the Lexicon, the pseudo-empty N in 2 seems to rather correspond to a full N: before the concatenation of the past participle suffix *é* to the root *kõfi*, |I| belongs exclusively to the stem final N. It is not shared with any following onset, as there is none. It is only after suffixation that the configuration is created by which proper government can take place - resulting in |I| delinking - and the OCP is violated - thereby triggering |I| spreading. However, given the fact that the pseudo-empty N can be silenced by proper governed, it also looks different from a full N. An alternative would be representing it as a yer. However, given the formal problems of yers discussed in the preceding section, I maintain that the pseudo-empty N in 2 should be actually represented as eN, as shown in 3.

As shown in 3a, in the lexicon, whereas all the other segments have both the projection and the pronunciation

[8] In standard GP, p-licensing means 'no phonetic interpretation', which can happen via proper government, parameter setting, interconsonantal governing and magic (Kaye 1990, Charette 1991, 2003).

[9] This does not hold for forms in which the pseudo-empty category is preceded by a branching onset: *déplié* [depliˈje] 'unfolded'.

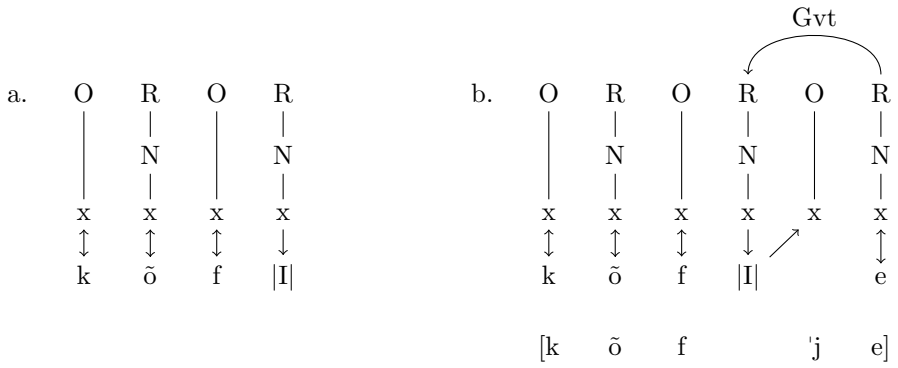

Figure 3: Gliding under proper government in TT

relation, the final N of the root *kõfi* lacks the pronunciation one. This means that, once this form is fed to the phonological module, the pronunciation of its melodic content must be negotiated: if it is not followed by a proper governor, it gets its pronunciation relation and is phonetically interpreted.[10] On the other hand, as shown in 3b, if it is followed by a proper governor, it must keep silent. In such a case, if there is an adjacent empty position, its melodic content can spread to that position. This is formally expressed by the introduction of a pronunciation relation linking the element to the relevant root node.

Charette (2003) moves from Haworth (1994) and consider cases in which a properly governed pseudo-empty N is preceded by an EN, namely cases that seems to have two silent nuclei in a row. As already noticed, this possibility is in principle excluded, as EN cannot be properly governed by a N that is itself p-licensed.

By comparing Continental and Quebec French, two structures can be identified, depending on the consonant surrounding the EN. If the EN is preceded by a "potential onset governor" (i.e. the first segment of a complex onset) and followed by a "potential onset governee" (i.e. the second segment of a complex onset), the two consonants do not enter in a (onset-to-onset) governing relationship, and the EN cannot be properly governed and needs to be phonetically interpreted. An example is *atelier* [atəlˈje], where the EN occurring between *t* and *l* cannot be properly governed by the pseudo-empty N, which is itself properly governed by the following full N and surfaces as a glide.[11] Conversely, if the EN is preceded by a "potential onset governee" and followed by a "potential onset governor", the two consonants either do not enter into a governing relationship and the EN either behaves as in the previous case, as in Quebec French *cimetière* [simətˈjɛr], or they do enter in a governing relationship. In this case, EN is properly governed, as in Continental French *cimetière* [simtˈjɛr] (Charette 2003:474). The presence of a governing relationship between the two consonants flanking EN seems thus to be a condition for EN to be properly governed.[12] However, Charette (2003) claims that this is not enough to silence the EN, and that an external proper governor is needed. The problem is thus identifying who this is. Namely, in the form shown in 4, whether the EN

[10]This happens e.g. in the present tense, where the element gets faithfully interpreted. As an example, see 1sg *confie*, pronounced as [kõˈfi]. In such a case, one might assume an EN/eN 1sg marker. As this is not more complex than the stem/root final eN, the latter cannot be properly governed. As a consequence, it gets phonetically interpreted. Due to space limitation, it is not possible to further discuss such a case.

[11]In what follows, following Charette (2003), I assume that the glide corresponds to the phonetic interpretation of a pseudo-empty N silenced under government, despite the fact that the paper provides no evidence supporting the hypothesis that the relevant piece of melodic content is doubly linked. It could well be the case that the glide is just the second segment of a complex onset, with no N occurring between the latter and the first segment of the onset.

[12]In this contribution, I abstract away from the problems related to governing relationship between these consonants, as they are orthogonal to my argumentation. See (Scheer 2004:114) for discussion.

occurring between *m* and *t* is properly governed by the following properly governed eN (surfacing as a glide), or by the following full N *è*.

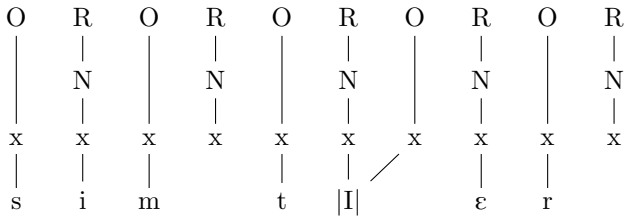

Figure 4: Lexical representation of Continental French *cimetière* (Charette 2003:474)

As explicitly stated by (Charette 2003:466), one could argue that "the proper government of a pseudo-empty nucleus does not exhaust the governing potential of its proper governor [and that the] latter can therefore [...] properly govern two nuclei". Alternatively, one could argue that "a p-licensed pseudo-empty nucleus, unlike a p-licensed empty nucleus, has governing potential. That is, a p-licensed pseudo-empty nucleus could act as a proper governor and assure the p-licensing of an empty nucleus" (Charette 2003:474). In her paper, she starts exploring the latter option, but she eventually discards it and settles on the former. Maybe she's right, or maybe not.

Both options come with their own problems, which are also explicitly recognised. Assuming that *ε* properly governs the pseudo-empty N and the preceding EN "implies relaxing the condition on strict adjacency between proper governor and governee" (Charette 2003:476), as well as the binarity principle according to which a proper governor can only govern one empty position. On the other hand, "claiming that a p-licensed position can act as a proper governor forces us to relax the conditions on what constitutes a proper governor [...] How could therefore any other type of p-licensed position be different? The condition is on p-licensing in general, not on the type of p-licensed category" (Charette 2003:476). Crucially, I argue that p-licensed positions can indeed be different from each other, that they differ in terms of representational complexity, and that it is the latter the property determining what governs what. As claimed throughout the paper, this grounds on the possibility provided by TT of distinguishing between two asymmetric root-melody relation, which can enter the calculation of a position complexity. Once this is taken into consideration, Continental French *cimetière* [simtˈjɛr] can be represented as in 5.

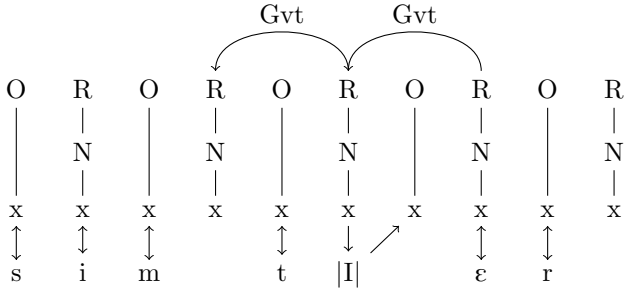

Figure 5: EN proper government by eN in TT

In 5, the full N ɛ properly governs the preceding pseudo-empty N. Accordingly, the latter is assigned no pronun-

ciation relation and keeps silent, whereas its melodic content spreads to - i.e. it is pronounced on - the following empty onset. Crucially, as the pseudo-empty is representationally more complex than the preceding EN, it can discard its proper government power on the latter, which gets no phonetic interpretation.

5 Conclusion

In this contribution, I moved from the proposal put forward by Charette (2003), who suggests to a) relax the condition on strict adjacency between proper governor and governee and b) give up on the binarity principle that allows a proper governor to govern only one empty position, and I suggested that such a departure from standard GP assumptions can actually be avoided by exploiting the representational possibilities provided by Turbidity Theory. The latter allows to split the standard autosegmental symmetric root-melody relation adopted by GP-base theories into two asymmetric relations - projection and pronunciation -, which can add up to the representational complexity of a position. Once we allow such a possibility, we can stick to the standard GP assumption relating the government strength of a give position to its representational complexity (Harris 1990), and account for cases of properly governing properly governed nuclei without departing too much from the tenets of GP. An apparent deviation from the GP orthodoxy is the fact that, by allowing a properly governed eN to properly govern, we contradict another GP pillar, which prohibits p-licensed (i.e. governed) N to properly govern. However, I maintain that if we consider the effects of p-licensing - i.e. the presence/absence of TT relations - rather that p-licensing per se, the deviation is not that problematic. Finally, I showed how such an approach can provide a solution to the formal problems related to the visibility and the alignment of the floaters of yers.

References

Anderson, J. (1985). Structural analogy and dependency phonology. *Acta Linguistica Hafniensia*, 19(2):5–44.

Anderson, J. (1992). *Linguistic Representation: Structural Analogy and Stratification*. Mouton de Gruyter, Berlin & New York.

Anderson, S. (1982). The analysis of french shwa: Or, how to get something for nothing. *Language*, 58:534–573.

Bafile, L. (2020). Vowel-zero alternations in government phonology and strict cv theory. *Studi e Saggi Linguistici*, 57(2):83–113.

Boersma, P. (2011). A programme for bidirectional phonology and phonetics and their acquisition and evolution. In Benz, A. and Mattausch, J., editors, *Bidirectional Optimality Theory*, pages 33–72. John Benjamins.

Carvalho, J. B. d. (2019). Representation vs derivation: The case for a modular view of phonology.

Cavirani, E. (2010). Il vincolo nella fonologia generativa [the constraint in generative grammar]. Master's thesis, University of Pisa.

Cavirani, E. (2012). Brief history of the concept of constraint in generative phonology. [paper presented at Phonology Reading Group, Leiden University; available online at].

Cavirani, E. (2015). *Modeling phonologization: vowel reduction and epenthesis in Lunigiana dialects*. PhD thesis, LOT Dissertation series.

Cavirani, E. and van Oostendorp, M. (2017). On silent markedness. In Samuels, B., editor, *Beyond Markedness in Formal Phonology*, pages 101–120. Benjamins, Amsterdam.

Cavirani, E. and van Oostendorp, M. (2019). Empty morphemes in dutch dialect atlases: Reducing morphosyntactic variation by refining emptiness typology. *Glossa*, 4(1):1–22.

Cavirani, E. and van Oostendorp, M. (2020). A theory of the theory of vowels. *Morpheme-internal Recursion in Phonology*, 140:37–56.

Charette, M. (1991). *Conditions on Phonological Government*. Cambridge University Press, Cambridge.

Charette, M. (2003). Empty and pseudo-empty categories. In Ploch, S., editor, *Living on the Edge: 28 Papers in Honour of Jonathan*, pages 465–479. Mouton de Gruyter, Berlin and New York.

Chomsky, N. (1981). *Lectures on government and binding: The Pisa lectures*. Dordrecht.

Chomsky, N. (1982). *Some concepts and consequences of the theory of government and binding*. MIT press.

Chomsky, N. (1986). *Barriers*. MIT press.

Chomsky, N. (1995). *The minimalist program*. MIT Press, Cambridge, Massachusetts.

Chomsky, N. and Halle, M. (1968). *The Sound Pattern of English*. Haper & Row, New York.

Coleman, J. and Local, J. (1991). The "no crossing constraint" in autosegmental phonology. *Linguistics and Philosophy*, 14:295–338.

Cyran, E. (2008). Consonant clusters in strong and weak positions. *Lenition and Fortition. Berlin: Mouton de Gruyter*, pages 447–481.

Cyran, E. (2010). *Complexity scales and licensing in phonology*, volume 105. Walter de Gruyter.

de Castro-Arrazola, V., Cavirani, E., Linke, K., and Torres-Tamarit, F. (2015). A typological study of vowel interactions in basque. *Isogloss. A journal on variation of Romance and Iberian languages*, 1(2).

den Dikken, M. and van der Hulst, H. (2020). On some deep structural analogies between syntax and phonology. *Morpheme-internal Recursion in Phonology*, 140:57–116.

Goldrick, M. (2001). Turbid output representations and the unity of opacity. In Hirotani, M., Coetzee, A., Hall, N., and Kim, J.-y., editors, *NELS 30*, pages 231–246, Amherst. GLSA.

Goldsmith, J. (1976). *Autosegmental phonology*. PhD thesis, Massachusetts Institute of Technology.

Golston, C. (1996). Direct optimality theory: Representation as pure markedness. *Language*, 72:713–748.

Gussmann, E. (2002). *Phonology: Analysis and Theory*. Cambridge University Press, Cambridge.

Halle, M. (1959). *The Sound Patterns of Russian*. Mouton de Gruyter, The Hague.

Harris, J. (1990). Segmental complexity and phonological government. *Phonology*, 7(2):255–300.

Harris, J. (1994). *English Sound Structure*. Blackwell, Oxford.

Harris, J. and Gussmann, E. (2002). Word-final onsets. *UCL Working Papers in Linguistics*, 14:1–42.

Hartmann, J., Hegedus, V., and van Riemsdijk, H. (2008). Introduction. In *Sounds of Silence: Empty Elements in Syntax and Phonology*, pages 1–22. Brill, Leiden, The Netherlands.

Haworth, E. (1994). The trouble with french glides.

Hyman, L. M. (2014). How autosegmental is phonology? *The Linguistic Review*, 31(2):363–400.

John, P. (2014). *The phonology of empty categories*. PhD thesis, University of Quebec, Montreal.

Kaye, J. (1990). Government in phonology. the case of moroccan arabic. *The linguistic review*, 6(2):131–160.

Kaye, J., Jean, and Vergnaud, J.-R. (1990a). Constituent structure and government in phonology. *Phonology*, 7(1):193–231.

Kaye, J., Lowenstamm, J., and Vergnaud (1985). The internal structure of phonological representations. *Phonology Yearbook*, 2:305–328.

Kaye, J., Lowenstamm, J., and Vergnaud, J.-R. (1990b). Constituent structure and government in phonology. *Phonology*, 7:193–231.

Kisseberth, C. (1970). On the functional unity of phonological rules. *Linguistic Inquiry*, 1:291–306.

Lasnik, H. and Saito, M. (1984). On the nature of proper government. *Linguistic Inquiry*, 15(2):235–289.

Lowenstamm, J. (1996). Cv as the only syllable type. In Durand, J. and Laks, B., editors, *Current Trends in Phonology: Models and Methods*, volume 2, pages 419–441. ESRI, Salford, Manchester.

Paradis, C. (1988). On constraints and repair strategies. *The Linguistic Review*, 6:71–97.

Passino, D. (2013). A place in the lexicon for the epenthetic vowels of the emilian dialects. *Lingue e linguaggio*, 12(1):3–30.

Polgárdi, K. (1999). Constraint ranking, government licensing and the fate of final empty nuclei. In Rennison, J. and Kühnhammer, K., editors, *Phonologica 1996*, pages 167–182. Holland Academic Graphics, The Hagues.

Prince, A. and Smolensky, P. (1993). *Optimality Theory: Constraint Interaction in Generative Grammar*. Blackwell.

Rizzi, L. (1990). *Relativized minimality*. The MIT Press.

Scheer, T. (2004). *A Lateral Theory of Phonology*, volume 1. Mouton de Gruyter, Berlin.

Scheer, T. and Cyran, E. (2017). Syllable structure in government phonology. In *The Routledge Handbook of Phonological Theory*, pages 262–292. Routledge.

Scheer, T. and Kula, N. C. (2018). Government phonology: Element theory, conceptual issues and introduction. In Hannahs, S. and Bosch, A. R. K., editors, *The Routledge Handbook of Phonological Theory*, pages 226–261. Routledge, London & New York.

Scobbie, J., Coleman, J., and Bird, S. (1996). Key aspects of declarative phonology. In Durand, J. and Laks, B., editors, *Current Trends in Phonology: Models and Methods*, pages 685–710. ESRI, Salford, Manchester.

Shibatani, M. (1973). The role of surface phonetic constraints in generative phonology. *Language*, 49:87–106.

Singh, R. (1987). Well-formedness conditions and phonological theory. In Dressler, W. U., editor, *Phonologica 1984*. Cambridge University Press.

Spencer, A. (1986). A non-linear analysis of vowel-zero alternations in polish. *Journal of Linguistics*, 22:249–280.

Stanley, R. (1967). Redundancy rules in phonology. *Language*, 43:393–436.

Torres-Tamarit, F. (2015). Length and voicing in friulian and milanese. *Natural Language & Linguistic Theory*, 33(4):1351–1386.

Van Oostendorp, M. (2008). Incomplete devoicing in formal phonology. *Lingua*, 118(9):1362–1374.

Wells, R. (1949). Automatic alternations. *Language*, 25:99–116.