

French *du* and *au* ain't portmanteau

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I Introduction

I.1 Portmanteau

We are addressing the textbook example of a portmanteau realization, one of the initial examples that inspired Hockett (1947) to identify this kind of phenomenon in his ontology of problems for an Item and Arrangement approach to morphology, coining the term **portmanteau morph** (not *morpheme* as many erroneously call it!). In fact, Hockett called French /o/ «the simplest example of a portmanteau», cf. (1-2).

- (1) French *à le* → /o/:
- a. Je m'adresse **à** l'adorable public.
I myself.address to the.wonderful audience
 - b. Je m'adresse **au** public
I myself.address to.the audience
- (2) French *de le* → /dy/:
- a. Je bois **de** l'absinthe.
I drink of the.absinthe
 - b. Il boit **du** lait.
He drinks of.the milk

Descriptively, the (masculine) definite article amalgamates with an immediately preceding preposition *à* 'to' (1) or *de* 'of' (2) unless it is immediately followed by a vowel.

Def: A portmanteau morph is a single morph «which belongs simultaneously to two [...] morphemes» (Hockett 1947:333).

In more current realizational terms (à la Distributed Morphology): a portmanteau is the realization by single vocabulary item (VI) of a set of morphosyntactic features that entered the syntactic derivation in two or more separate heads.

1.2 The nutshell version of the talk

- We compare two possible views on $\grave{a} le \rightarrow /o/$ and $de le \rightarrow /dy/$:
 - (a) a portmanteau realization of two morphemes by a single VI, in the context of a given (phonological) environment.
 - (b) a portmanteau illusion resulting from the regular phonological interaction of two adjacent VIs, in the context of a given (phonological) environment.
- On view (a) the structural amalgamation of the two morphemes is sensitive to phonological information before that information is available, which is countercyclic.
- On view (b) the underlying form of the definite article is such that it interacts with a preceding vowel if it's not syllabified as an onset.
- View (a) is incoherent (cf. Caha 2009; Svenonius 2016; Haugen and Siddiqi 2016).
- View (b) is coherent, but only if \grave{a}/de and le are strictly phonologized in the same cycle.
- As P and D are generally proposed to be in separate spellout domains, \grave{a}/de cannot be instances of P, but must be DP-internal morphemes.

Proposal: French *du* and *au* are portmanteau illusions synchronically derived in the phonology from the underlying forms of two separate adjacent morphemes.

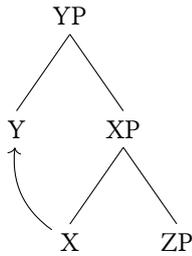
Concretely, the VI that realizes the definite article is a floating Element [U] without accompanying syllabic structure, in search of a V or C position to be pronounced in.

1.3 Portmanteau in DM

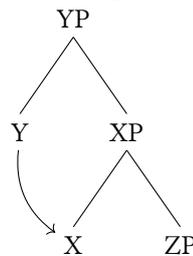
- A portmanteau corresponds to the realization of two (or more) syntactic heads by a single Vocabulary item.
- Since Vocabulary insertion targets terminal nodes, this necessitates prior **Fusion** of two syntactic heads (cf. Halle and Marantz 1993).
- Since Fusion is the union of terminal sister nodes (Embick 2010:78), this necessitates prior **head-head adjunction** through either Head-movement (3a) or Lowering (3b).

- Head movement: a syntactic operation that moves a head X to the head Y, where XP is the sister (complement) of Y, see (3a) (Travis 1984; Baker 1988).
- Lowering: a post-syntactic operation that moves a head Y to the head X, where XP is the sister (complement) of Y, see (3b) (Embick and Noyer 2001).

(3) a. Head-mvt



b. Lowering



- Head movement or Lowering for the purpose of Fusion of P+D has received the critique of suffering from a look-ahead problem: only those heads that will be spelled out as a portmanteau will undergo Lowering+Fusion (cf. Caha 2009; Merchant 2015; Svenonius 2016).
- The look-ahead problem is compounded with the fact that the process is sensitive to phonology; recall that the realizations of French *de le* as [d ϵ] and *à le* as [o] are restricted to pre-consonantal contexts:

→ i.e., either (3a) or (3b) would have to be sensitive to the phonology inside of ZP.

(4) Modular architecture of the grammar in DM (Halle and Marantz 1993):

SYNTAX → LOWERING + FUSION → VI-INSERTION → PHONOLOGY

- Head movement is syntactic and therefore insensitive to phonology, ruling out (3a).
- As for Lowering, regardless of whether or not *à/de* are in the same spell out phase as the definite article, these heads would need to be sensitive to the phonological environment of ZP, a domain not adjacent to *de/à*, but adjacent to the definite article, ruling out (3b).¹

CONCLUSION: *du* and *au* are **illusory** portmanteaus!

- We will argue that this illusion is derived in the regular phonology, due to the underlying representation of the definite article as [U] and the way it interacts with surrounding syllabic and segmental structure within a cycle.
- Hence we will start by showing that *à/de* and D have to be inside the same cycle.
- Let us turn to showing that they are!

¹The phonological conditioning poses similar problems for an account in terms of spanning. Svenonius (2012:12) proposes to resolve this with an optimality theoretic account for the restriction.

2 In which *de* and *à* are argued to be inside the DP

- Why is this important?

→ The realization as [o] of the definite article is not simply a matter of *le* being linearly preceded by a vowel /a/; see (5).

- (5) a. Il mangea le gâteau.
He ate the cake
b. [il mǎʒalgato] / * [il mǎʒogato]

- In (5), the phonology does NOT interpret the sequence [a] followed by the definite article [U] as [o].
- This is because the verb and D are in separate phases/cycles.
- Note that *à/de* and the definite article have to be in the same spell out domain for the hypothesized phonology, exhibited in (1-2), to occur.
- P and D are generally assumed to be spelled out in separate phases.
- If this translates into separate phonological cycles, the facts in (1-2) suggest that *de* and *à* are not instances of P, i.e. not prepositions.

2.1 What are *à* and *de*?

- They are the infinitival complementizers (6), see Kayne (1981, 1999).
- They are dative and genitive Case markers (7), see Vergnaud (1974); Kayne (1975); Jaeggli (1981); Elliot (1986); Zaring (1991).

- (6) a. Il commence **à** pleuvoir.
it starts to rain.INF
b. J'ai arrêté **de** fumer.
I.have quit DE smoking.INF
- (7) a. Je lui donne un livre [**à** Maya]
I her give a book to Maya
b. Je vois un ami [**de** Jérôme]
I see a friend of Jerome's

2.2 *à/de* are DP-internal case morphemes

- Compare indirect objects and possessors in French (8) and German (9).
- In German, the functional equivalent of *à/de* in (8) are dative and genitive case suffixes, clearly within the DP:

(8) a. Je le donne *à* la femme / *au* garçon.
 I it give to.DAT the woman / to.DAT.the boy

b. le livre *de* la femme / *du* garçon
 the book of.GEN the woman / of.GEN.the boy

(9) a. Ich geb s d-er Frau / d-em Jungen.
 I give it the-DAT.F woman / the-DAT.M boy

b. das Buch d-er Frau / d-es Jungen
 the book the-GEN.F woman / the-GEN.M boy

- We conclude that in both types of languages dative and genitive case markers head a functional projection K (for Kase), with the difference between German and French being that in the former language but not in the latter they are affixes (as do Cardinaletti and Starke (1999) for *à* in Italian *à loro* ‘to them’).

(10) a. Indir. objects: *donner* ι_{DO} [K_P [K *à_{dat}*] [D [NP ...]]]

b. Possessors: [DP [NP Noun [K_P [K *de_{gen}*] [DP D [NP ...]]]]]]

- NB: we will assume that K is also present in structural case (NOM/ACC) as a CV, needed as a syllabic space; see below.
- The situation may look slightly more complicated in spatial uses of *à* and partitive uses of *de*, so let’s take a look.

2.3 Spatial *à/de* and partitive *de*

- *à* in spatial constructions: *à* occurs with both a stative and with a directional interpretation:

(11) a. Je suis *à la* bibliothèque / *à l’institut* / *au* magasin.
 I am at the library / at the.institute / at.the store

b. Je vais *à la* bibliothèque / *à l’institut* / *au* magasin.
 I’m going to the library / at the.institute / at.the store

→ The oblique DP is selected by an abstract noun PLACE or PATH, respectively (cf. Leu 2008; Noonan 2010; den Dikken 2010; Koopman 2010; Svenonius 2010).

(12) [_{PP} LOC [_{NP} PLACE/PATH [_{KP} [_K à_{dat}] [_{DP} D [_{NP} ...]]]]]²

→ The translation of *à* to both English *at* and *to* (*bei* and *zu* in German) does not require any special treatment; it is simply dative in the context of both spatial constructions. (Cf. Noonan 2010: who treats *à* as the same element in both locative and directionals) .

- *de* in spatial contexts (source interpretation):

(13) a. Je sors **de la** bibliothèque / **de l'**institut / **du** magasin.
 I'm coming out of the library / of the institute / of the store
 b. [_{NP} SOURCE/PATH [_{KP} [_K DE_{gen}] [_{DP} D [_{NP} ...]]]]]

- *de* in partitives (indefinites that express a part of):

(14) a. Je mange de la crème glacée / de l'ananas / du chocolat.
 I eat (some) ice cream / pineapple / chocolate
 b. [_{NP} QUANTITY [_{KP} [_K de_{gen}] [_{DP} D [_{NP} ...]]]]]

In (14a), the oblique DP is selected by an abstract noun of (undefined) quantity (cf. AMOUNT/NUMBER in Kayne 2008).

- To summarise, in spatial contexts and in partitives, *de/à* express case (K) in the domain of an abstract noun.

2.4 Interim conclusion

- *à/de* are KP-internal case morphemes (DAT and GEN, respectively), and never prepositions.
- Hence, *à/de* and the definite article are spelled out in the same phase/cycle.
- That is simply what the facts in (1-2) show.
- Remember, that does not allow a portmanteau analysis,

→ but it provides the conditions needed for a phonological account.

²Note that dative case (*à*) is not possible in the presence of a pronounced LOC-PLACE: *Il est à la gare.* versus **Il est dans/derrière/sur/sous à la boîte.* Cf. German, where such adpositions are followed by dative case; (Noonan 2010). We leave this problem for further research.

3 In which *du/des* and *au(x)* are phonologically derived

This section lays out a phonological analysis of the alternations between *à* (15) and *de* (16) and the masculine determiners in the singular (a,b) and plural (c,d).

(15) a. [**a**lanimal]
à l' animal
to the animal
'to the animal'

b. [**o**gaksõ]
au garçon
to the boy
'to the boy'

c. [**o**zanimoz]
aux animaux
to the.pl animals
'to the animals'

d. [**o**gaksõ(z)]
aux garçons
to the.pl boys
'to the boys'

(16) a. [**də**lanimal]
de l' animal
of the animal
'of the animal'

b. [**dʒ**ygakõ]
du garçon
of the boy
'of the boy'

c. [**də**zanimoz]
'des animaux'
of the.pl animals
'of the animals'

d. [**də**gakõ(z)]
des garçons
of the.pl boys
'of the boys'

3.1 Background phonological assumptions

- Autosegmental/Representational assumptions:
 - Any aspect of phonological structure (syllabic, segment-internal) has the capacity to exist autonomously (Goldsmith 1976).
 - * The syllable structure in the derivations below use CVCV Phonology (Scheer 2004). (CV = σ)
 - * The internal structure of segments is captured using Element Theory and aspects of Government Phonology 2.0 (Pöchtrager 2015; Pöchtrager and Kaye

2013; Backley 2011), necessitating appeals to Substance-Free Phonology (Reiss 2017; Chabot to appear).

- French-specific assumptions:
 - Coronal consonants contain the element |I| (Backley 2011)
 - Assibilation in French is effected via spreading of |I| from a coronal to a following vowel if it has the *structure* of a high, front vowel.
 - * This proposal takes the insight of Pöchtrager (2021) and offers an alternative.
 - * We agree that affrication in the absence of palatalization is due to a relationship between coronals and high, front vowels in French, and that this relationship cannot be that the vowels' |I| is spreading to the preceding C.
 - * Rather than this relation being 'anticipatory spreading' from the vowel (as in Pöchtrager (2021), it is spreading of the |I| element from the C to the V.³
 - The morpheme realized as [l] in [lə] is underlyingly a floating Element |U|.
 - Hiatus resolution in French is the deletion of one of a sequence of two vocalic root nodes (indicated as bullets (= •) in the structures to follow).
 - * A root node that is unassociated to melodic structure is weak and will be deleted in hiatus.
 - * When two associated vowels are in hiatus within a phase, the second is deleted.⁴
 - The syllabification of a floating Element must be mediated by the epenthesis of supporting segmental structure.
 - * Linking of a floating Element to a V position is mediated by an epenthetic schwa.
 - * Linking of a floating Element to a C position is mediated by an epenthetic coronal stop.

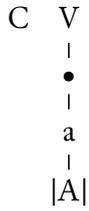
3.2 Underlying Representations

The following representations are what are inserted into the phonological string at Vocabulary Insertion and constitute the input to the phonological derivations. We abstract away from the articulated segment-internal structure when it is not crucial (e.g., |A| is a place-holder for segment-internal structure).

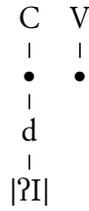
³Japanese, also discussed in Pöchtrager (2021) has a similar pattern of a high non-|I| V [u] playing a role in non-palatal affrication. We think it might be interesting to look into whether the proposal here can be extended to Japanese.

⁴There are some instances of hiatus resolution via epenthesis of a C in French, but the pattern of their insertion is not clear (e.g., *blablablter* 'to go on and on', *si l'on...* 'if we...')

(17) UR of 'à'



(18) UR of 'de'



(19) UR of 'l'

|U|

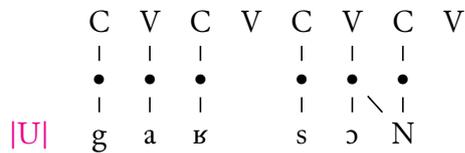
3.3 The derivations

Let us first consider a derivation with the definite article, but without *à* or *de*:

(20) [[l̥ gɑʁsɔ̃]] 'the boy'
 l̥ gɑʁsɔ̃
 DEF.SG boy

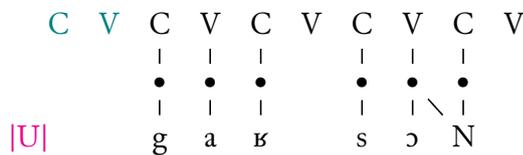
In *le garçon* the 'l' = |U| cannot syllabify as the onset of the following word, but must syllabify nonetheless (floating melody would remain unpronounced). Note, however, that without further assumptions, we cannot explain either the pronunciation of [l̥] or the (optional) realization of schwa with the structure in (21):

(21) [l̥gɑʁsɔ̃] (to be revised)



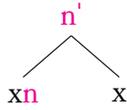
The way in which we must account for the fact that 'l' can be pronounced here and that schwa is inserted is to appeal to the exponent of CASE : here an empty CV is the (syncretic) UR of NOM and ACC (as proposed in §2.2).

(22) [l̥gɑʁsɔ̃]

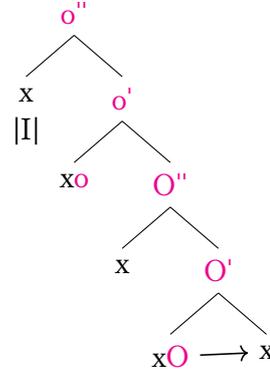


The 'l' cannot link directly to either the C or the V nodes, as it has no root node. The epenthetic structures in French are as follows (slightly mod. from Pöchtrager (2021)):⁵

(23) Epenthetic V = [ə]

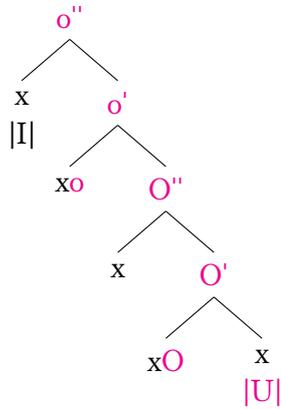


(24) Epenthetic C = [t]

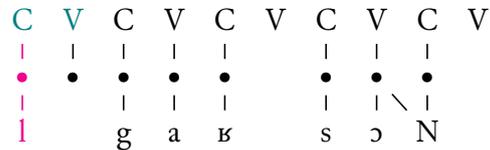


As $[U]$ is not specified for category (C or V) it attempts to link to the closest node, C, in (22). This triggers epenthesis of (24), and $[U]$ links to the bottommost node. The \rightarrow in (24) is a control relationship present in stops which is bled by the insertion of $[U]$, giving a coronal non-stop /l/ (25) (à la Pöchtrager (2021)). In (26) we represent the optional phonetic realization of a V node as a bare root node.

(25) Coronal /l/



(26) [ləgʌʁsɔ̃]



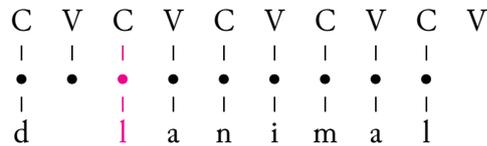
(25) is the UR for non-alternating /l/s in French, in addition to accounting for the coronal realization of $[U]$ in onset positions.

⁵The pattern of C-epenthesis in French is not clear (e.g., *blablabter* 'to go on and on', *si l'on...* 'if we...'), but the epenthetic Cs that do surface are coronal.

3.5 The *de + le* derivations

Now let us consider the derivation of ‘de’ and ‘l’. Before a V-initial word, the following structure is derived:

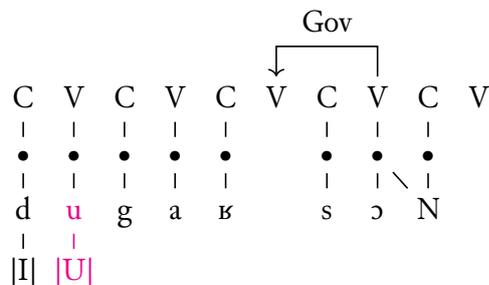
(30) [dəlanimal]



In (30) the definite ‘l’ links to the empty C position, as in (29).

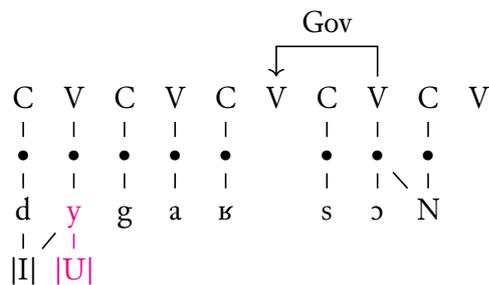
Now let us turn to the derivation of *du garçon*. If we were to only link the |U| to the empty root node in the V, we would derive [du], which is not the required output form.

(31) *[dugaksõ]



Instead, we need a source for the |I| Element required to combine with |U| to derive [y] = |IU|. The source for this |I|, as proposed in §3.1, is the preceding coronal stop. /d/ and /t/ are proposed to contain |I|. If this |I| is shared with the following vowel, the structure derived in (31) becomes as below:

(32) [dʷygarksõ]



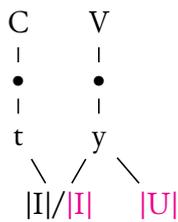
Explaining why the coronal stop should spread |I| onto the node to which |U| is linked requires an excursus into the internal structure of vowels and a slight modification of the analysis

of assibilation in Pöchtrager (2021). The short story is that the linking of |U| mediated by the structure of epenthetic vocalic segmental structure results in a phonological structure that is identical to that of a high, front vowel, rather than the structure of a back vowel. It therefore triggers the spreading of |I|. The long story is in the following subsection.

3.5.1 In which |U| is a front vowel

Explaining the front round vowel in the output of *du garçon*, requires a detailed consideration of the internal structure of the segments involved. Remember that in §3.1 it was proposed that coronal stops in French contain the element |I|. This element is proposed here to be responsible for the assibilation facts in Quebec French, whereby /d/ and /t/ become [d^z] and [t^s] before high, front vowels, as in [t^sy] ‘tu’ and [d^zivɛʁ] ‘diverse’. As in Pöchtrager (2021), we propose that this assibilation is due to a relationship between the element |I| and the structure of the following Vowels. We will however offer a re-analysis that derives both the assibilation and *du/au(x)* patterns: the |I| of the coronal C spreads as in (33).

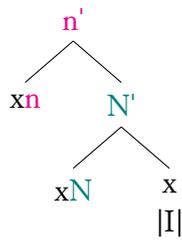
(33) [t^sy]



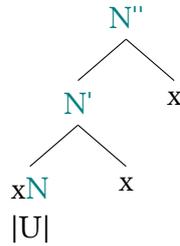
Notably, we also propose that the structure in (33) is derived even in dialects of French without assibilation; in Hexagonal French, for example, the structure in (33) is realized as [ty], as the *du/au(x)* pattern is active in all dialects.

The representation of the definite ‘l’, being |U|, does not immediately appear to be the type of vowel that should share |I| with a coronal stop: the default phonetic interpretation of |U| is [u], a high, back vowel. In order to explain why the |I| of /d/ may merge with the |U| of the definite determiner there must be a property that is shared between the high, front vowels and |U| that is not shared with [u]. In other words, high, front vowels and |U| must form a natural class. If we examine the structures below, which follow the logical possible vocalic structures afforded by Pöchtrager (2024), we note that vowels contain two types of structural projection: **n** and **N**. Levels of structure in GP 2.0 = aperture.

(34) *The structure of [e]*



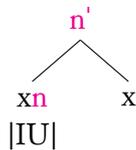
(35) *The structure of [o]*



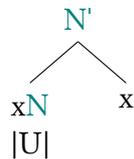
(Pöchtrager 2021:8)

Therefore, the front and back high round vowels in French, [y] and [u], can be distinguished by their structural projections, as follows:

(36) *The structure of [y]*



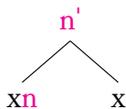
(37) *The structure of [u]*



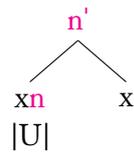
Given the above distinction, we can describe the environment of assibilation structurally: Coronal consonants spread $|I|$ to a following V iff this V projects a single xn layer (in Pöchtrager (2021) this is also the locality relation proposed to underlie assibilation in QF). This captures that coronal Cs assibilate in the presence of high, front Vs.

Now consider the status of a floating Element. Such an Element, like $|U|$, does not contain any segmental structure in its underlying representation. As discussed in §3.3, when this floating bundle does link to available syllable structure this process must be mediated by epenthetic segmental structure. The epenthetic vowel in French is schwa, which has the least marked segmental structure, repeated in (38). If we link the floating $|U|$ to this structure, the result is the structure of a high, front vowel which happens to not contain $|I|$: (39). It is this xn structure that triggers spreading of the $|I|$ in coronal stops, leading to assibilation in the presence of a vowel whose Element suggests ‘backness’. Given that French permits high, round vowels, $|U|$ itself cannot be limited to ‘back’ vowels and will not block assibilation.

(38) *The structure of [ə]*



(39) *The structure of [vocalic l]*
cf. (37)



Note that this epenthetic segmental structure is distinct from the optional phonetic realization of a root node as schwa. An empty root node will not trigger |I|-spreading, explaining why we do not see assibilation generally before [ə].

The conclusion of this discussion is that the structure of the underspecified |U|, unlike French phonemic [u] (which has the structure in (37)), will trigger spreading of |I| from the [d] of the GEN marker, leading to the fronting of |U| to |IU| = [y], as in (32), and to the assibilation of [d] in Quebec French. Other Vs in French that have the x_n structure already contain |I|, and this is why we only see fronting in the presence of assibilation in the case of *du*.

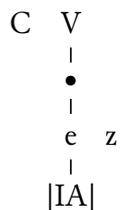
Note that all French coronal and palatal Cs will contain |I|: /d, t, z, s, n, ʒ, ʃ, ʝ, l, j, ɥ/. It is possible that the structure of palatals prevents them from undergoing assibilation. But, even if they were to participate in this operation, it would arguably have no phonetic effect. If we assume that fricatives vacuously undergo assibilation, and that sonorants either do not undergo assibilation or that it does not affect their phonetic output, then /t,d/ are the only |I| consonants in French that will demonstrate overt assibilation.

To conclude, the fronting of the vowel in *du* is part of the process of assibilation. The floating |U| is the only front vowel to not contain |I| underlyingly, and therefore it is the only vowels that displays this alternation.

3.6 The plural derivations

We can now turn to the derivations of ‘aux’ and ‘des’. The UR of the plural morpheme contains, in addition to a liaison C [z], the vowel [e]. This [e] must be an exponent of a separate morpheme from the plural (see e.g., Tremblay and Dufresne (2018)). It appears not only in *des* but also in the possessive pronouns *mes, tes, ses* and the plural determiner *les* (a sub-component of ‘de + les’ = ‘des’). In the derivations to follow we will abstract away from this, but will assume that the plural morpheme in the determiners is as in (40) while the non-determiner plural is just the liaison C as in (41).

(40) UR of [ez]



(41) UR of [z]

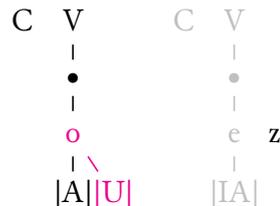
z

We can now consider the derivation of ‘aux’ and ‘des’.⁷ In (42), before linking of |U|, there are two vocalic root nodes in hiatus: those associated with [a] and [e]. Hiatus of two full vocalic

⁷The pronunciation of the [z] of the plurals is dependent on the following word. For details see Appendix A.

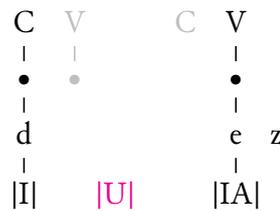
root nodes in French within a cycle is resolved by deleting the second. In CVCV phonology, this deletion will result in removal of the preceding C as well: all syllabic sequences must be CV and therefore a C position cannot be ‘orphaned’. Deleted content is grayed out.

(42) [o(z)]



In the derivation of ‘des’, in comparison to the derivation of ‘aux’, there is no segmental structure in the root V position associated with the GEN vocabulary item. Therefore, under hiatus, before linking of the definite |U|, this hiatus is resolved by deletion of the empty V node, and of the following unlinked C node (in gray) (following Gussmann and Kaye (1993)).

(43) [de(z)]



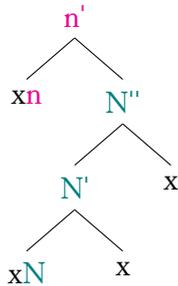
In (43) the definite |U| has no node to link to and therefore remains unpronounced. One might wonder now why the |U| does not merge with the [e] of ‘des’. The short answer is that coalescence we saw in (28) is only possible with certain vowels; vowels that do not contain any Elements. The long answer follows below.

3.6.1 In which floating |U| only merges with empty vowels

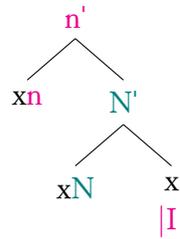
Following (Pöchtrager 2006) and subsequent work, the vowel that we have been referring to with the Element structure |A| is in reality a vowel whose structure is devoid of Elements. Aperture in Government Phonology 2.0 is represented by structure, as in (44). We can compare the structure of [a] with the structure of [e] in (45), a vowel that hosts the Element |I| within its structure.⁸

⁸/a/ may contain an additional layer of structure. This makes no difference to the point being made here.

(44) *The structure of [a]
Contains no Elements*



(45) *The structure of [e]
Contains an Element*



$|U|$ may link to $|A|$ (empty structure) (and to $/ə/$, as in (38)), but cannot merge with the vowel $[e]$ in 'des'.

4 Conclusion: *du* and *au* are not portmanteau

In this talk we presented arguments that the surface forms $[d^z y]$, $[de(z)]$, $[o]$, and $[o(z)]$ are not realizations of portmanteau morphs, but rather are derived in the synchronic phonology of French. This offers a phonological solution to the morphological problems raised when attempting to derive these forms as portmanteaux. The central claims supporting these arguments are as follows:

- *de* and *à* are not true prepositions, but are rather the exponents of KASE.
- KASE morphemes are spelled out in the same phase as the definite determiner.
- The phonological derivation within a spell out cycle allows for a synchronic phonological derivation in which the UR of 'l', $|U|$ is realized either as a C or as (part of) a V depending on the normal workings of autosegmental phonology.
 - The above account also led to (1) a re-analysis of the process of assibilation in French, and (2) an account of the velar-coronal alternation of $/l/$.

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