On the structure and interpretation of Polish passives

Sławomir Zdziebko
The John Paul II Catholic University of Lublin
s.zdziebko86@gmail.com

Abstract: The realization of Polish passives is influenced by the specific properties that a given participle shares with its verbal base. These include: argument structure and aspectual type, the conjugation class and the phonological properties of the stem. This paper offers an account of how these variables are reflected in the exponence and morphophonology of Polish passives. The paper presents an analysis of the distribution of Passive Participle Markers *-ł-* /ł/, *-t-* /t/, *-n-* /n/ and *-on-* /ɔn/ in Polish within a syntactic approach to word formation (Jablonska 2004; Caha 2009, Embick & Marantz 2008). I also address the issue of the morphophonological mutations attested in Polish passive participles and postulate that they should not be given a uniform analysis. The alternation between /ɛ/ and /a/ attested in Polish *ej-* and *e*-verbs is suppletive in nature, while mutations attested in the thematic marker *-ną-*~*-nię-* /nɔ̃/~/ɲɛ̃/ and the Passive Participle Marker *-on-*~*-eni-* /ɔn/~/ɛɲ/ are triggered by the integration of floating features into the structure of the said exponents.

Keywords: passives; morphophonology; morphology; Element Theory; Optimality Theory

1. Introduction

Polish is not unlike most studied languages in that despite the presence of a variety of semantically and syntactically different passive participles, such as verbal and adjectival passives, and target and resultant state passives,[1] it employs a relatively moderate set of morphological distinctions to realize passive participles.

The template presented below illustrates the order of morphemes found in Polish passive participles. Note that the Prefix and the Theme vowel are not found in all passives.

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[1] The verbal vs. adjectival passive distinction in English has been investigated in Wasow (1977) and Bruening (2014), among many others. Kratzer (2000) offers a discussion and analysis of target and resultant state passives in German. Target vs. resultant state passive distinction has been also recently addressed in Alexiadou et al. (2015) from a cross linguistic perspective. How the two lines of division among passives are rendered in Polish has not been addressed until recently (see Bondaruk & Rozwadowska to appear).

(1)   (Prefix) – √ROOT – (Theme vowel) – Passive Participle Marker – Agreement

The Passive Participle Marker (PPM) may take one of the four shapes: *-ł-*/ł/,[2] *-t-* /t/, *-n-* /n/ or *-on-* /ɔn/. (2) presents basic morphological types of passives found in Polish, together with the verbs they are related to.

(2)   Infinitive   Passive
   a.   o-wdowi-e-ć /ɔvdɔvʲɛtɕ/   o-wdowi-a-ł-y /ɔvdɔvʲałɨ/   (*ł*-passive)
      TEL-widow-TH-INF   TEL-widow-TH-PASS-NOM.SG.MASC
      'become a widow(er) (telic)'   'that became a widower'
   b.   za-mok-ną-ć /zamɔknɔ̃tɕ/   za-mok-nię-t-y /zamɔkɲɛ̃tɨ/   (*t*-passive)
      behind-wet-TH-INF   behind-wet-TH-PASS-NOM.SG.MASC
      'become drenched'   'drenched'
   c.   wy-sprząt-a-ć /vɨspʃɔ̃tatɕ/   wy-sprząt-a-n-y /vɨspʃɔ̃tanɨ/   (*n*-passive)
      out-clean-TH-INF   out-clean-TH-PASS-NOM.SG.MASC
      'clean up'   'cleaned up'
   c.   roz-budz-i-ć /rɔzbudʑitɕ/   roz-budz-on-y /rɔzbudzɔnɨ/   (*on*-passive)
      apart-wake-TH-INF   apart-wake-PASS-NOM.SG.MASC
      'arouse'   'aroused'

Together with the use of the different types of the PPM, the examples found in (2) illustrate several kinds of morphophonological alternations attested in Polish passives.

(2a) illustrates the alternation between the thematic vowel *-e-* /ɛ/, found in the infinitive, and *-a-* /a/, found in the passive. In (2b), thematic element *-ną-* /nɔ̃/ is composed of a dental nasal and a back nasal vowel, while in the passive the same thematic element features a prepalatal nasal and front nasal vowel: *-nię-* /ɲɛ̃/. (2c) illustrates an *n*-passive, which surfaces with a thematic vowel *-a-* /a/. *i*-verbs and some athematic verbs realize the participle with an affix *-on-* /ɔn/ illustrated in (2d). The said /ɔ/ surfaces as /ɛ/ in the virile (plural masculine human) forms of the said passives (see below for details).

The aim of this paper is to provide an analysis of the exponence and morphophonology of Polish passives. This entails providing answers to the following questions: (i) How is the complex syntax of passives (discussed below) related to the template in (1)?; (ii) What is the basis of the distri-

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[2] The vast majority of the literature on Polish morphophonology assumes that what is realized as the labio-velar semi-vowel [w] on the surface is underlyingly a velarized lateral /ł/. Here the transcription convention I use is faithful to this abstract interpretation.

bution of the Passive Participle Markers?; (iii) What is the nature of the segmental alternations attested in passives?

The relation between the syntax and the morphology of passives will be addressed within the syntactic approach to word formation that assumes that it is not only the terminal nodes (heads) but also sets or spans of terminals that may be spelled as a single exponent (see Starke 2005; Jabłońska 2007; Caha 2009 among others for a version of such an approach). Within this kind of approach the situation in which the number of syntactic heads present in a given construction is greater than the number of the morphological exponents that realize the relevant construction may be captured without postulating post-syntactic operations such as Fusion or multiple cases of zero exponence. It also allows for a neat formulation of an account in which certain functional nodes are realized by means of the stem exponent. Such an account is particularly attractive from the point of view of the analysis of the variation in the use of *ł*-passives and *t*-passives of some unaccusative verbs that will be addressed here.

The exponence of Polish passives, including the distribution of PPMs, will be argued to be influenced by factors such as the argument structure of the verbal base (e.g., only unaccusatives give rise to *ł*-passives), the aspectual type of the verbal base (e.g., only certain degree achievement and semelfactive verbs employ exponent *-ną-* /nɔ̃/) and the conjugation class of the verbal base (e.g., only *i-verbs* and certain athematic verbs utilize exponent *-on-* /ɔn/ in passives) as well as the phonological shape of the stem (e.g., only stems terminating in consonants form *t*-passives).

The segmental alternations attested in passives will be argued not to form a uniform class. The alternation between the thematic *-e-* /ɛ/ and *-a-* /a/ attested in examples (2a) will be argued to be suppletive in nature. On the other hand, the alternations attested in exponents *-ną-* /nɔ̃/ (2b) as well as *-on-* /ɔn/ (2d) will be argued to involve the integration of palatalizing autosegments into their segmental structure.

I will also address the issue of variation and preference in the use of *t*-passives over the use of *ł*-passives noted by Cetnarowska (2000; 2012) and observed in the passives of unaccusatives in Polish. I will claim that the said variation may be accounted for in a syntactic approach to word formation as a preference among speakers to realize the structure by means of simpler vocabulary items.

The paper is organized as follows: section 2 introduces some general assumptions about the syntactic structure of Polish verbs, participles and conjugational classes of Polish verbs and proposes how these distinctions should be expressed formally. Section 3 discusses how the syntax and the

classification of verbs are reflected in the morphology of Polish passive participles. In section 4, following a brief introduction of the approachs to exponence and phonology assumed in this study, I provide a detailed account of the morphophonological properties of passives based on unaccusative verbs (4.1), as well as transitives (4.2). Section 5 contains some concluding remarks.

2. Basic theoretical assumptions

Within the syntactic approach to word-formation assumed in this article, Polish passives inevitably inherit properties such as argument structure, aspectual type and conjugation class from the verbs they are based on. Hence, it is only natural that the discussion of the morphophonology of passives be preceded by a discussion of certain facts concerning Polish verbs. This section is preoccupied with the basic properties of Polish verbs which have an impact on the exponence and morphophonology of the passive participles. In section 2.1 I am going to present the relevant facts concerning the representation of aspectual and argument structure distinctions in Polish. In section 2.2. I will demonstrate that, apart from the factors enumerated above, also the morphological class of the verbal base influences the exponence of passives. I will also outline the approach to the morphological classification of verbs proposed in this study.

2.1. Core structure of Polish verbs

This paper undertakes the analysis of passive participles based on telic verbs.[3] In Polish telicity is correlated with the presence of a prefix in the structure.

Polish possesses at least two large classes of prefixes: lexical (low) and supralexical (high/quantificational) prefixes. The former class adds a

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[3] Polish passives based on atelic verbs are not discussed here for following reasons. As has been recently argued by Bondaruk & Rozwadowska (to appear) passive participles of atelic (imperfective) verbs, e.g., *kochany* 'loved' are necessarily verbal passives. It is a well-known fact that unaccusative verbs do not give rise to verbal passives. This paper is preoccupied with the nature of the differences between the exponence of passives based of unaccusatives and passives based on transitive verbs. Atelic verbal passives simply do not allow for any such comparison. Passives of atelic verbs are necessarily passives of transitive verbs. At the same time the analysis of the exponence of the passives based on transitive verbs proposed in section 4.3. holds for adjectival passives as well as verbal passives of telic and atelic transitives.

spatial flavour to the verb although the exact lexical meaning of a given prefix in a given verb is typically difficult to pin down. Lexical prefixes often enforce idiosyncratic reading of the verbs they attach to. Lexical prefixes do not stack and may affect the argument structure of the verb (for details see Svenonius 2004; Jabłońska 2004; Łazorczyk 2010 among others).

Polish supralexical prefixes: quantificational *po-* /pɔ/ (meaning roughly 'a little'), distributive *po-* /pɔ/ 'many times' and quantificational *na-* /na/ 'a lot', have stable adverbial meaning. They are allowed to stack and do not affect the lexical meaning or the argument structure of the verbs. They may co-occur with lexical prefixes in which case they are always found further from the stem.

Polish also possesses a class of so called purely aspectual or purely perfectivizing prefixes. These are non-stacking prefixes with no semantic contribution beyond rendering the predicate telic.[4] Jabłońska (2004) treats them as supralexical prefixes, while Łazorczyk (2010) analyzes them as specific instances of lexical prefixes.

Following much of the literature concerning Slavic prefixes, I will assume that so-called lexical prefixes in Polish originate as heads of PPs in the complement of Resultative Phrases (RPs). Svenonius (2004, 243) analyses the PPs headed by prefixes as containing empty quantificational DPs, which must move to a position c-commanding the V. More precisely, they move to the specifier of the aspectual phrase that dominates the VP. The representation of a Polish telic verb is given in (3) below.

(3)
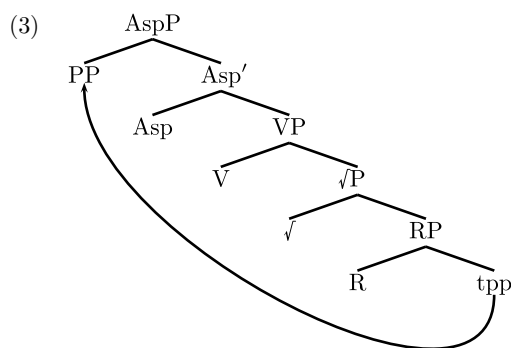
The Asp(ect)-head merged above the V-head may be specified for the [Δ]-operator, which is responsible for the (degree) achievement semantics. [Δ]

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[4] Although see Janda et al. (2013) for arguments against the claim that purely perfectivizing prefixes in Russian are semantically empty.

introduces a scale along which the internal argument changes with respect to a property defined by the semantics of the root (see e.g., Hay et al. 1999). Secondly, the Asp-head may or may not be marked with feature [telic], which renders the predicate non-homogenous (see Łazorczyk 2010).

Yet a different specification of the Asp-head is present in semelfactive verbs. Semelfactives are instantaneous, punctual verbs. They are inherently telic and may occur with lexical prefixes (cf. *od-kop-ną-ć* /ɔtkɔpnɔ̃tɕ/ 'kick back', *przy-klep-ną-ć* /pʃiklɛpnɔ̃tɕ/ 'tap'). I will assume that the specification of Asp-head in semelfactives involves features [SEM] responsible for non-processual semantics and telicity.

Let us assume that only telic Asp-heads project specifiers.[5] The desirable consequence of such an assumption is that only telic verbs may occur with lexical prefixes. On the other hand, Polish atelic degree achievements may occur only with quantificational *po-* /pɔ/ 'some, a little' as well as with purely perfectivizing prefixes, cf. *po-czerni-e-ć* /pɔtʃɛrɲɛtɕ/ 'become black a little', *z-czerni-e-ć* /stʃɛrɲɛtɕ/ 'become black (telic)' but not with lexical prefixes, cf. *wy-czernieć 'out-become black', *pod-czernieć 'under-become black'. I follow Jabłońska's (2004) analysis whereby quantificational prefix *po-* /pɔ/ 'a little' and purely aspectual prefixes are introduced in the specifiers of higher Aspectual phrases than the phrase in which lexical prefixes are merged. This assumption allows Jabłońska (2004) to account for two facts concerning the morpho-syntax of the inner aspect in Polish: (i) the quantificational *po-* /pɔ/ 'a little' is always found outside the lexical prefixes in the cases of prefix stacking (4a); (ii) purely aspectual prefixes block the formation of Secondary Imperfectives (SI), i.e., the operation that produces atelic predicates on the basis of telic predicates (see (4b) and Jabłońska 2004; Łazorczyk 2010 for accounts).
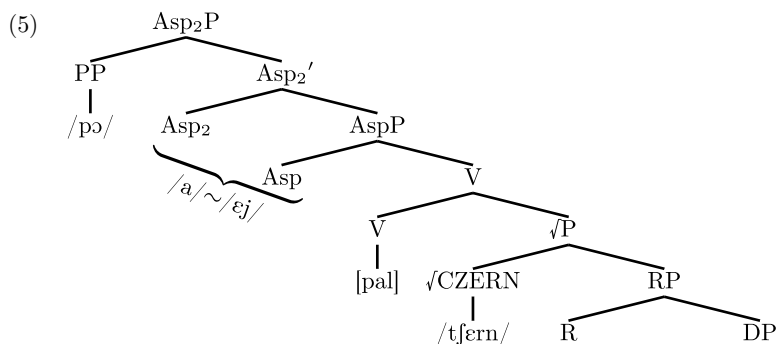
The order of prefixes is quite a natural consequence of the order in which they are merged in the specifier positions of the two Asp-phrases. The incompatibility of purely aspectual prefixes with SI follows from the fact that both SI-operator and aspectual prefixes are located in the specifier of the same Asp₂-phrase: they are in complementary distribution.

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[5] This may be achieved by assuming the presence of a feature D on the Asp-head. This feature is subordinate to features [telic]/[SEM]. As a nominal feature it is uninterpretable on an Asp-head and must be checked by the merger of the DP in Spec;Asp. The said checking is achieved by the internal merge of the PP headed by the prefix.

(4) a.

atelic predicate	lexical prefix–telic predicate	*po*–lexical prefix–atelic predicate
pis-a-ć /pʲisatɕ/	od-pis-a-ć /ɔtpʲisatɕ/	po-od-pis-yw-a-ć /pɔɔtpʲisɨvatɕ/
write-TH-INF	back-write-TH-INF	a little-back-write-SI-TH-INF
'write'	'write back'	'write back a little'
budz-i-ć /budʑitɕ/	roz-budz-i-ć /rɔzbudʑitɕ/	po-roz-budz-a-ć /rɔzbudzatɕ/
wake-TH-INF	apart-wake-TH-INF	a little-apart-wake-SI.TH-INF
'wake up'	'arouse'	'arouse a little'

b.

atelic predicate	aspectual prefix–telic predicate	aspectual prefix–SI
v pis-a-ć /pʲisatɕ/	na-pis-a-ć /napʲisatɕ/	*na-pis-yw-a-ć /napʲisɨvatɕ/
write-TH-INF	TEL-write-TH-INF	TEL-write-SI-TH-INF
'write'	'write (telic)'	intended: 'write (SI)'
budz-i-ć /budʑitɕ/	z-budz-i-ć /zbudʑitɕ/	*z-budz-a-ć /zbudzatɕ/
wake-TH-INF	TEL-apart-wake-TH-INF	TEL-apart-wake-SI.TH-INF
'wake up'	'wake up (telic)'	'wake up (SI)'

Under the current analysis both the representation of the verb *po-czerni-e-ć* a little-black-TH-INF /pɔtʃɛrɲɛtɕ/ 'become black a little' and the representation of the passive based on it, i.e., *po-czerni-a-ł-y* a little-black-TH-PASS-NOM.SG.MASC /pɔtʃɛrɲaɫɨ/ 'that became a little black', contain two aspectual heads above the VP. Asp1-layer is responsible for the degree achievement semantics, while Asp2-head introduces the quantificational prefix *po-* /pɔ/. (5) illustrates the representation of the verb *po-czerni-e-ć* /pɔtʃɛrɲɛtɕ/ 'become black a little' and the corresponding passive *po-czerni-a-ł-y* /pɔtʃɛrɲaɫɨ/ 'that became a little black' up to and including the aspectual level. Traditionally the thematic element *-ej∼a-* /ɛj/[6]∼/a/ has been treated as the realization of the verbal head (see e.g., Jabłońska 2004; 2007). However, I will analyze it as the realization of the Asp-layer. The V-head is realized as a palatalizing autosegment whose nature will be discussed later on.

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[6] In Polish the palatal glide /j/ is not licensed before consonants. I will assume that this is due to the inviolable status of a markedness constraint */j;Coda. The presence of /j/ at the end of words and before vowel-alternation sites is due to the presence of empty syllabic positions after /j/ in these contexts (see Gussmann 2007).

(5)

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                    Asp₂P
              ┌───────┴────────┐
            PP              Asp₂′
            │          ┌──────┴────────┐
           /pɔ/      Asp₂           AspP
                   ┌──┴──┐       ┌────┴────┐
                 /a/~/ɛj/ Asp   V        √P
                              ┌──┴──┐  ┌───┴────┐
                             V    √CZERN      RP
                             │      │      ┌───┴───┐
                           [pal]  /tʃɛrn/  R      DP
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In section 4 the choice between the exponents -*ł*- /ł/, -*t*- /t/ or -*n*- /n/ in the passive participles of many verbs will be shown to be dependent on the presence or absence of an external argument introducing head. I will show that exponents -*t*- /t/ and -*n*- /n/ are attested in the participles of transitive verbs, i.e., verbs which possess the external argument introducing head. On the other hand, exponent -*ł*- /ł/ is attested only in the participles based on verbs which do not possess an external argument introducing heads. I follow Kratzer's (1996) proposal and assume that external arguments are merged as specifiers of the Voice phrase.

As in the case of the aspectual distinctions, the passive participles share the presence/absence of the external argument introducing head with the verbs they are related to. Thus the causative verb *po-czern-i-ć* 'blacken a little' /pɔtʃɛrɲitɕ/ gives rise to an *on*-passive *po-czerni-on-y* /pɔtʃɛrɲɔnɨ/ 'one that was blackened'. On the other hand, a change-of-state unaccusative *po-czerni-e-ć* /pɔtʃɛrɲɛtɕ/ 'become black a little' is related to the *ł*-passive *po-czerni-a-ł-y* /pɔtʃɛrɲałɨ/ 'that became a little black'.
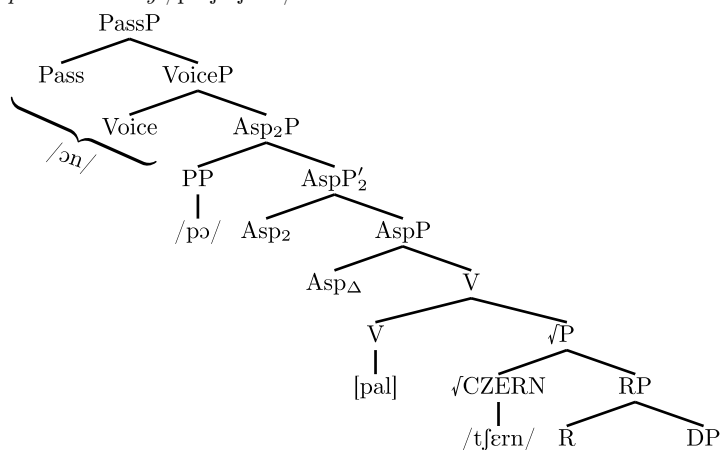
The Voice head is itself introduced above the inner aspect projections in Polish and is present in transitive verbs and the passives based on transitive verbs. Crucially, Voice head is absent in unaccusatives and passives based on unaccusatives.

Passives do not possess syntactic external arguments. This property may be expressed formally by treating the Voice head present in passive participles of transitives as Schäfer's (2008, 175) passive Voice head, i.e., a Voice head which does not possess the D-feature responsible or the projection of a specifier.[7] (6) and (7) are the respective representations of a
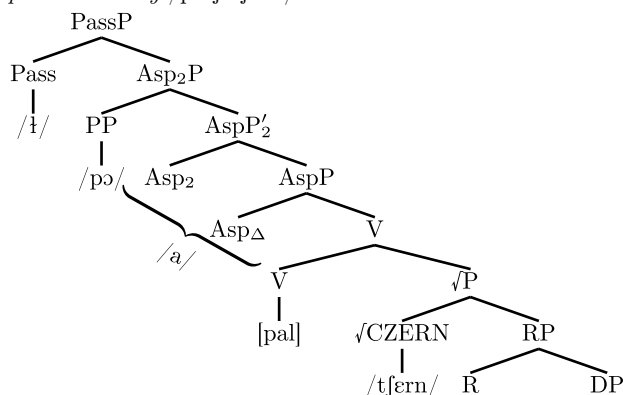
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[7] As matter of fact Schäfer's (2008) system distinguishes between passive thematic Voice head and passive athematic Voice. The former does not project the specifier but is allowed to assign a thematic role. This makes it a good candidate for the Voice head

passives based on a transitive verb, i.e., *po-czerni-on-y* /pɔtʃɛrɲɔnɨ/ 'that was blackened a little' and a passive based on an unaccusative verb: *po-czerni-a-ł-y* /pɔtʃɛrɲałɨ/ 'that became a little black'.

(6)   *po-czerni-on-y* /pɔtʃɛrɲɔnɨ/ 'that was blackened an little'

[Tree diagram:
PassP
├─ Pass
│   /ɔɲ/
└─ VoiceP
    ├─ Voice
    └─ Asp₂P
        ├─ PP
        │   /pɔ/
        └─ AspP′₂
            ├─ Asp₂
            └─ AspP
                ├─ Asp_Δ
                └─ V
                    ├─ V
                    │   [pal]
                    └─ √P
                        ├─ √CZERN
                        │   /tʃɛrn/
                        └─ RP
                            ├─ R
                            └─ DP]

(7)   *po-czerni-a-ł-y* /pɔtʃɛrɲałɨ/ 'that became a little black'

[Tree diagram:
PassP
├─ Pass
│   /ł/
└─ Asp₂P
    ├─ PP
    │   /pɔ/
    └─ AspP′₂
        ├─ Asp₂
        │   /a/
        └─ AspP
            ├─ Asp_Δ
            └─ V
                ├─ V
                │   [pal]
                └─ √P
                    ├─ √CZERN
                    │   /tʃɛrn/
                    └─ RP
                        ├─ R
                        └─ DP]

found in verbal passives which always show disjoint interpretation, i.e., always possess an implied agent/causer (see Emonds 2006; Bruening 2014; Alexiadou et al. 2015). The passive athematic Voice head does not project a specifier and does not assign a thematic role. This type of a passive head is most probably found in adjectival passives of transitive verbs, which may or may not show disjoint interpretation depending on whether the verb they are based on is a Naturally Reflexive or a Naturally Disjoint Verb (see Alexiadou & Schäfer 2014 for the details of this distinction).

Later I will argue that the Pass-head, adopted here from Bruening (2014) and Alexiadou et al. (2014), should rather be decomposed into a Participal (Prt-head) and the categorizing adjectival head.

2.2. The classification of Polish verbs

Yet another factor which clearly influences the exponence of Polish passives is the conjugation class of the verb a given passive is based on. The influence of the conjugation class is particularly clearly visible is the case of pairs of verbs and passives which differ in their exponence but do not differ in the argument structure and the aspectual type. Some such examples are presented in (8) and (9).

(8) a. z-głupi-e(j)-ć /zgłupʲɛtɕ/   – z-głupi-a-ł-y /zgłupʲału/
         TEL-stupid-TH-INF   TEL-stupid-TH-PASS-NOM.SG.MASC
         'become stupid (telic)'   'that became stupid'
     b. s-puch-ną-ć /spuxnɔ̃tɕ/   – s-puch-nię-t-y /spuxɲɛ̃tu/
         TEL-swollen-TH-INF   TEL-swollen-TH-PASS-NOM.SG.MASC
         'become swollen (telic)'   'that became swollen'

(9) a. s-trac-i-ć /stratɕitɕ/   – s-trac-on-y /stratsɔnu/
         TEL-lose-TH-INF   TEL-lose-PASS-NOM.SG.FEM
         'lose (telic)'   'lost'
     b. s-trat-owa-ć /stratɔvatɕ/   – s-trat-owa-n-y /stratɔvanu/
         TEL-lose-TH-INF   TEL-lose-TH-PASS-NOM.SG.MASC
         'trample (telic)'   'trampled'

The verbs presented in (8) are degree achievement unaccusatives whose telic properties are indicated by the presence of purely aspectual prefixes (glossed as TEL). In sum the two verbs share the same argument structure (no Voice head) and the same specification of the Asp-heads. Still, the verbs and their passives differ in the exponence of the aspectual layer: -ej- ∼-a- /ɛj/∼/a/ in (8a) and -ną-∼-nię- /nɔ̃/∼/ɲɛ̃/ in (8b), as well as in the Passive Participle Marker they employ: -ł- /ł/ in (8a) and -t- /t/ in (8b).

The examples in (9) contain two transitive verbs containing purely aspectual prefixes. The verbs differ in the thematic elements they contain. The verb 'lose' (9a) is marked with thematic element -i- /i/, while the verb 'trample' (9b) is marked with exponent -owa- /ɔva/. The morphological difference is carried over to the passives. The passive based on the *i*-verb does not possess a specific realization of the aspectual layer, while the passive based on the *owa*-verb inherits this exponent from the verb (see

(9b)). The former employs the passive marker *-on-* /ɔn/, while the latter gives rise to an *n*-passive.

Note that the verbs and passives in (9a) and (9b) are built on the same root √TRAT /trat/. This means that the details of the exponence mentioned above cannot be accounted for with reference to the idiosyncratic properties of the root. In fact the situation in which the exponence of a given verb cannot be decided on the basis of the presence/absence of the Voice head, aspectual properties and the root are not rare in Polish. The data in (10) illustrate further such examples.

(10) a. mruż-y-ć[8] /mruʒitɕ/ vs. mrug-a(j)-ć /mrugatɕ/
      wink-TH-INF   wink-TH-INF
      'squint'   'wink'

     b. śnież-y-ć /ɕɲɛʒitɕ/ vs. śnieg-owa-ć /ɕɲɛgɔvatɕ/
      snow-TH-INF   snow-TH-INF
      'snow'   'use low temperatures for therapeutic purposes'

     c. drż-e-ć /drʒɛtɕ/ vs. drg-a(j)-ć /drgatɕ/
      vibrate-TH-INF   vibrate-TH-INF
      'shiver'   'vibrate'

     d. klask-a-ć /klaskatɕ/ vs. klask-a(j)-ć /klaskatɕ/
      clap-TH-INF   clap-TH-INF
      'clap'   'clap'

     e. łup-i-ć /łupʲitɕ/ vs. łup-a-ć /łupatɕ/
      slam-TH-INF   slam-TH-INF
      'mug'   'crash'

Apart from the meaning differences present in most cases, the pairs in (10) differ in the morphological class the relevant verbs belong to.

The established approach to the morphological classification of Polish verbs presented in Czaykowska-Higgins (1998) treats the identity of the root as the factor deciding about the class of the verb.[9] The data found

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[8] In the verbs *mruż-y-ć* 'to squint one's eyes' and *śnież-y-ć* 'to snow', *drż-e-ć* 'to shiver' stem-final /g/ undergoes the regular morphophonological mutation known in the literature as 1st Velar Palatalization (see Gussmann 1980; Rubach 1984).

[9] In her Distributed Morphology-based account, Czaykowska-Higgins (1998, 34) claims that thematic elements in Polish realize Verbalizing Suffixes (VS) added to the representation post-syntactically at the level of Morphological Structure. Within the system proposed in Czaykowska-Higgins (1998), acategorial roots are marked for features on the basis of which particular exponents of VS are inserted. Czaykowska-Higgins does not discuss cases in which a single root is found in two or more verbs which belong to different conjugational classes.

in (9) and (10) show that a single root may be found in verbs which do
not differ in their syntax but belong to different morphological class. It is,
therefore, highly unlikely that it is the root that decides about the class of
a given verb.

To account for the possibility of a single root to appear within more
than one conjugational class I will assume that the class identity is the
function of the V-heads that categorize the roots. V-heads are assumed
to be marked with two classificatory features $[\pm\alpha]$ and $[\pm\beta]$. The classifi-
catory features are PF-interpretable features which percolate up the tree
in the way category, [+ablaut], [+latinate] and other class features were
assumed to percolate in the approaches to word-formation presented in
Lieber (1980); Williams (1981) and Jensen & Strong-Jensen (1984). It is
the marking introduced by the V-heads that drives the exponence of the
relevant verbs and the passives these verbs are related to.

Generative literature on Polish (see Rubach 1984; Nykiel-Herbert
1986; Szpyra 1989; Rowicka & van der Weijer 1994; Czaykowska-Higgins
1998; Jabłońska 2004; 2007) recognizes eight classes of verbs. The eight
classes are typically named after the thematic element that follows the
root in the Infinitive. The traditional classification is presented in (11).

(11) Polish conjugational classes (all examples √ROOT-Thematic element-Infinitive)

  a. *∅-verbs: my(j)-∅-ć* /mɨtɕ/ 'wash', *gnieś-∅-ć* /gɲɛɕtɕ/ 'smash', *cią-∅-ć* /tɕɔ̃tɕ/ 'cut'

  b.   *ną-verbs: kop-ną-ć* /kɔpnɔ̃tɕ/ 'kick', *tup-ną-ć* /tupnɔ̃tɕ/ 'trample', *chud-ną-ć*
      /xudnɔ̃tɕ/ 'become slim'

  c.   *a-verbs: płak-a-ć* /pɫakatɕ/ 'cry', *łaskot-a-ć* /ɫaskɔtatɕ/ 'tickle', *łap-a-ć* /ɫapatɕ/
      'catch'

  d. *i-verbs: gub-i-ć* /gubʲitɕ/ 'lose', *lecz-y-ć* /lɛtʃɨtɕ/ 'cure', *kończ-y-ć* /kɔntʃɨtɕ/ 'fin-
      ish'

  e. *e-verbs: krzycz-e-ć* /kʃɨtʃɛtɕ/ 'shout', *wiedzi-e-ć* /vʲɛdʑɛtɕ/ 'know', *siedzi-e-ć*
      /ɕɛdʑɛtɕ/ 'sit'

  f. *ej-verbs: głupi-e(j)-ć* /gɫupʲɛtɕ/ 'become stupid', *łysi-e(j)-ć* /ɫɨɕɛtɕ/ 'become
      bald', *siwi-e(j)-ć* /ɕivʲɛtɕ/ 'become grey-haired'

  g. *aj-verbs: koch-a(j)-ć* /kɔxatɕ/ 'love', *szloch-a(j)-ć* /ʃlɔxatɕ/ 'weep', *mach-a(j)-ć*
      /maxatɕ/ 'wave'

  h. *owa-verbs: tren-owa-ć* /trɛnɔvatɕ/ 'train', *mal-owa-ć* /malɔvatɕ/ 'paint', *brak-
      owa-ć* /brakɔvatɕ/ 'be lacking'

A largely independent proposal the I would like to outline here is to replace
the eight conjugation-class system of Polish recognized in the literature
with a five-class system. The reclassification is mainly based on the mor-
phophonological behaviour of the said classes: the conflated classes show

certain sound alternations which are not justified phonologically and must be analysed as the consequence of the presence of the classificatory features mention above.

An analysis that treats *Ø*-verbs (athematic verbs) and *nq*-verbs as a single class is suggested by the same pattern of palatalization that these classes show in non-past forms.[10] *Ø*-verbs and *nq*-verbs undergo Palatalization in all person-number combinations except for the 1st person singular and the 3rd person plural. This is illustrated in (12).

(12) Non-past paradigms of *kop-nq-ć*[11] 'to kick once' and *tłuc* 'to break'

	Singular	Plural
1st person	kop-/n/-ę	kop-/ɲ/-e-my
	'kick-TH-PRS.1SG'	'kick-TH-PRS.1PL'
	tłu/k/-ę	tłu/tʃ/-e-my
	'break-PRS.1SG'	'break-PRS.1PL'
2nd person	kop-/ɲ/-e-sz	kop-/ɲ/-e-cie
	'kick-TH-PRS.2SG'	'kick-TH-PRS.2PL'
	tłu/tʃ/-e-sz	tłu/tʃ/-e-cie
	'break-PRS.2SG'	'break-PRS.2PL'
3rd person	kop-/ɲ/-e	kop-/n/-ą
	'kick-TH-PRS.3SG'	'kick-TH-PRS.3PL'
	tłu/tʃ/-e	tłu/k/-ą
	'break-PRS.3SG'	'kick-PRS.3PL'

The pattern of palatalization visible in (12) is not found in any other verb class. Note, for example, that *a*-verbs (11c) in which the tense affix *-e-* /ɛ/ also directly follows the exponent of the root, show palatalization in the entire non-past paradigm (see (13)).

Importantly, the behaviour of *a*-verbs with respect to palatalization is also unique to this class. Only *a*-verbs undergo palatalization in the non-past paradigm but do not manifest palatalization in other inflectional forms of the verb. This suggests that *a*-verbs should be treated as a class separate from all other conjugational classes.

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[10] Polish telic verbs have future reference when marked with the same tense and inflectional markers as the present forms of atelic verbs. Hence the literature on Polish morphology typically makes the distinction between non-past and past forms.

[11] I treat exponent *-nq-* /nɔ̃/ to contain a floating back rounded nasal vowel which is realized only before consonants. The details of the analysis are presented in section 4.

(13) Non-past paradigms of the verbs *li*/z/*-a-ć* 'to lick', *pła*/k/*-a-ć* 'to cry'

	Singular	Plural
1st person	li/ʒ/-ę	li/ʒ/-e-my
	'lick-PRS.1SG'	'lick-PRS.1PL'
	pła/tʃ/-ę	pła/tʃ/-e-my
	'cry-PRS.1SG'	'cry-PRS.1PL'
2nd person	li/ʒ/-e-sz	li/ʒ/-e-cie
	'lick-PRS.2SG'	'lick-PRS.2PL'
	pła/tʃ/-e-sz	pła/tʃ/-e-cie
	'cry-PRS.2SG'	'cry-PRS.2PL'
3rd person	li/ʒ/-e	li/ʒ/-ą
	'lick-PRS.3SG'	'lick-PRS.3PL'
	pła/tʃ/-e	pła/tʃ/-ą
	'cry-PRS.3SG'	'cry-PRS.3PL'

Returning to the *ną-* and *Ø*-verbs, the presence or absence of exponent *-ną-* /nɔ̃/ is dependent on the argument structure and aspectual properties of the relevant verb. Apart from a handful of isolated exceptions, unaccusative verbs from the relevant class show *-ną-* /nɔ̃/ only in the non-past paradigm (e.g., *chud-ną-ć* slim-TH-INF 'to become slim' but *chud-ł-a-m* slim-PTCP-FEM.SG-1SG 'I became slim, fem, sg.'). At the same time most transitive semelfactives manifest the said exponent in past and non-past paradigms (*kop-ną-ć* kick-TH-INF 'to kick once' – *kop-ną-ł-e-m* kick-TH-PTCP-MASC.SG-1SG 'I kicked once, masc, sg.'). Other transitive verbs from the relevant class do not use thematic exponents, e.g., *gryź-ć* bite-INF 'to bite' - *gryz-ę* bite-PRES.1SG 'I bite' – *gryz-ł-a-m* bite-PTCP-FEM.SG-1SG 'I bit, fem, sg.'. In sum, the presence of *-ną-* is largely predictable and does not contradict treating athematic and *ną*-verbs as a single class.

Two other verb classes which can arguably be reanalyzed as a single class are *e*-verbs (11e) and *ej*-verbs (11f). All the verbs marked with thematic exponent *-ej-* /ɛj/ are (degree) achievement unaccusatives. At the same time no *e*-verb shows such syntactic properties. As the morphosyntactic properties of the two classes of verbs are complementary, it is possible to consider *e*-verbs and *ej*-verbs to belong of the same class whose members differ in the presence/absence of degree achievement semantics and the Voice-head.

This view is strengthened by the fact that *e*-verbs and *ej*-verbs show the alternation between /a/ and /ɛ/ in the virile forms of active *ł*-participle paradigms. The examples of the said alternation are presented in (14).

(14) Non-virile Forms   Virile Form

  a. *e*-verbs

  myśl-/a/-ł-y-śmy   myśl-/ɛ/-l-i-śmy

  think-TH-PTCP-NONVIR-1PL think-TH-PTCP-VIR-1PL

  'we thought'   'we thought'

  jęcz-/a/-ł-y-ście   jęcz-/ɛ/-l-i-ście

  moan-TH-PTCP-NONVIR-2PL moan-TH-PTCP-VIR-2PL

  'you moaned'   'you moaned'

  cierpi-/a/-ł-y   cierpi-/ɛ/-l-i

  suffer-TH-PTCP-NONVIR-3PL suffer-TH-PTCP-VIR-3PL

  'they suffered'   'they suffered'

  b. ej-verbs

  po-siwi-/a/-ł-y-śmy   po-siwi-/ɛ/-l-i-śmy

  a little-grey-TH-PTCP-NONVIR-1PL a little-grey-TH-PTCP-VIR-1PL

  'we went gray'   'we went gray'

  z-barani-/a/-ł-y   z-barani-/ɛ/-l-i

  TEL-ram-TH-PTCP-NONVIR-3PL TEL-ram-TH-PTCP-VIR-3PL

  'they went dumb'   'they went dumb'

  z-głupi-/a/-ł-y-ście   z-głupi-/ɛ/-li-ś-cie

  TEL-stupid-TH-PTCP-NONVIR-2PL TEL-stupid-TH-PTCP-VIR-2PL

  'you became stupid'   'you became stupid'

It will be shown in Section 4 that the presence of the alternation in the class of *e*- and *ej*- verbs is a consequence of the particular shape of vocabulary items re-writing pieces of the functional sequence in these particular classes of verbs. Importantly, for such an account to be unified *e*-verbs and *ej*-verbs should form a natural class.

  I will assume that the exponent *-owa-* /ɔva/ is a combination of exponents *-ow-* /ɔv/ and *-aj-* /aj/.[12] I also postulate that *aj*-verbs (11g above) and *ow-aj*-verbs (11h) form a single class, i.e., share the specification of the V-head. The difference between the two subclasses is in the size of the structure realized by the exponent of the root. Whereas, in *ow-a(j)*-verbs the stem realizes only the acategorial root, the subclass in *-aj-* utilizes the stem to realize the root and the categorizing head (see below for illustration).

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[12] Exponent *-owa-* has been treated as bi-morphemic by Czaykowska-Higgins (1998) and Łazorczyk (2010).

(15) below summarizes the morphological classification of Polish verbs.

(15) Polish conjugational classes (revised)

Thematic affix	∅/*nǫ*-verbs	*aj*-verbs	*i*-verbs	*e/ej*-verbs	*a*-verbs
Specification of the V-head	$[-\alpha, -\beta]$	$[+\alpha, -\beta]$	$[-\alpha, +\beta]$	$[+\alpha, +\beta]$	none

The specifications presented in (15) successfully capture certain affinities between the verbal classes. For instance, $[-\alpha]$-verbs, i.e., ∅/*nǫ*-verbs and *i*-verbs, realize Secondary Imperfective with exponent *-aj-* /aj/, while all other classes utilize exponent *-i/yw-* /iv/.

(16) Telic Infinitive   Secondary Imperfective Infinitive
     a. $[-\alpha]$-verbs
     od-gryź-ć /ɔdgriɕtɕ/   od-gryz-a(j)-ć /ɔdgrizatɕ/
     off-bite-INF   off-bite-TH.SI-INF
     'bite off'   'bite off, SI'
     roz-budz-i-ć /rɔzbudʑitɕ/   roz-budz-a(j)-ć /rɔzbudzatɕ/
     apart-wake-TH-INF   apart-wake-SI.TH-INF
     'arouse'   'arouse, SI'

     b. non-$[-\alpha]$-verbs
     od-pis-a-ć /ɔtpʲisatɕ/   od-pis-yw-a-ć /ɔtpʲisɨvatɕ/
     back-write-TH-INF   back-write-SI-TH-INF
     'write back'   'write back, SI'
     ob-gad-a(j)-ć /ɔbgadatɕ/   ob-gad-yw-a(j)-ć /ɔbgadɨvatɕ/
     over-chatter-TH-INF   over-chatter-SI-TH-INF
     'talk over'   'talk over, SI'
     prze-krzycz-e-ć /pʃɛkʃitʃɛtɕ/ prze-krzyk-iw-a-ć /pʃɛkʃicivatɕ/
     across-shout-TH-INF   across-shout-SI-TH-INF
     'shout louder'   'shout louder, SI'

Moreover, only $[+\beta]$-verbs, i.e., *i-verbs* and *e/ej*-verbs, show Palatalization in all forms of the non-past and past paradigms.

In (17), I illustrate how the assumptions outlined above may be applied to derive the exponence of verbs *mrug-a(j)-ć* 'to blink' and *bud-ow-a(j)-ć* 'to build'.

In *mrug-a(j)-ć*-subclass verbs, the root and the V-head are realized by (17b). Since the procedure of vocabulary insertion is a strictly bottom-up procedure, this bleeds the insertion of the exponents (17c) and (17e). Exponent (17d) realizes the Asp-layer in both the *mrug-a(j)-ć*-type and the *bud-ow-a(j)-ć*-type. In the latter subclass, however, it is bled by the insertion of the entry (17e) in the non-past tenses and the Imperative,

which surface as *bud-uj-* /buduj-/ with additional presence of the tense and agreement exponents in the non-past paradigm.

(17) a. √BUD ↔ /bud/

  b. {√MRUG, $V_{[+\alpha,-\beta]}$} ↔ /mrug/

  c. $V_{[+\alpha,-\beta]}$ ↔ /ɔv/

  d. $Asp_{[+\alpha,-\beta]}$ ↔ $\begin{Bmatrix} /aj/ \\ /a/ \Big/ \_\!\_ \ [-part,-pl]^{13} \end{Bmatrix}$

  e. {$V_{[+\alpha,-\beta]}$,Asp,Voice} ↔ /uj/ $\Big/ \_\!\_$ $\begin{Bmatrix} [-past] \\ Imp \end{Bmatrix}$

3. The morphology of Polish passives

The aim of the previous sections was to establish which syntactic and morphological factors influence the morphology of passives in Polish and how such factors should be formalized. In this section I will address the question of how exactly argument structure and morphological class distinctions are reflected in the exponece of passives.

Section 3.1. focuses on the exponence of passives based on unaccusatives, while section 3.2. is preoccupied with the morphology of the passives based on transitive verbs.

3.1. Passives of unaccusatives

In Polish unaccusative verbs are grouped in two conjugational classes: the *ną/Ø*-class and the *e/ej*-class and give rise to three morphological types of passives to be found below (passive participles presented in bold). Data have been taken from the National Corpus of Polish.

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[13] I assume two features decomposing the category of person: [±sp(eaker)] and [±part(icipant)]. The 1st person is specified as [+sp,+part]. The 2nd person carries the values [−sp,+part] and the 3rd person is specified [−sp,−part]. Polish is a two-number language which utilizes the feature [±plural]. For the sake of simplicity I will assume that Polish participles are marked with three gender features in the singular: [masculine], [feminine] and [neuter], and one binary feature in the plural: [±m(asculine)-pers(onal)].

(18) a.   ... są   **z-więd-ł-e**   i
             be.PRS.3PL TEL-wither-PASS-NOM.PL.NONVIR and

          wiotki-e...
          flabby-NOM.PL.NONVIR
          '...they are withered and flabby...'

     b.   Syn   do dziś   kaszl-e   i   jest
          son-NOM.SG to today   cough-PRS.3SG and be.PRS.3SG

          za-chryp-nię-t-y
          TEL-hoarse-TH-PASS-NOM.SG.MASC
          'The son has been coughing ever since and is hoarse.'

     c.   Jest   **po-szarz-a-ł-y**.
          be.PRS.3SG a little-grey-TH-PASS-NOM.SG.MASC
          'It became grey.'

The structure of the verbs on which the relevant passives are based is summarized in (19).

(19) a. *z-więd-ną-ć* /zvʲɛ̃dnɔ̃tɕ/ b. *za-chryp-ną-ć* /zaxrɨpnɔ̃tɕ/ c. *po-szarz-e(j)-ć* /pɔʃaʒɛtɕ/
        TEL-wither-TH-INF   TEL-hoarse-TH-INF   a-little-grey-TH-INF
        'to wither (telic)'   'become hoarse (telic)'   'become grey a little'

Sentence (18a) contains an *ł*-participle based on a *ną*-verb, i.e., *z-więd-ną-ć* 'wither (telic)' (19a). Sentence (18b) shares the root with the verb *za-chryp-ną-ć* 'become hoarse (telic)' (19b), which is also a *ną*-verb. At the same time the participle in (18b) is a *t*-passive. What we observe then, is variation in the exponence of passives based on *ną*-unaccusatives. They may give rise to *ł*-passives or *t*-passives. The presence of a given exponent is not always tied to a particular verb. Thus, apart from the form *za-chryp-nię-t-y* 'hoarse' (18b), one finds an *ł*-passive *za-chryp-ł-y* 'hoarse'. I will return to the issue of doublets in section 4.

An important observation that must be made at this point is that only *t*-passives but not *ł*-passives retain exponent -*ną*- /nɔ̃/ found in the verbal base. Moreover, as noted in the introduction, in the passive participles exponent -*ną*- /nɔ̃/ is subject to two segmental alternations: the dental /n/ becomes the prepalatal /ɲ/, while the back nasal /ɔ̃/ is realized as a front mid nasal /ɛ̃/: cf. *za-chryp*-/nɔ̃/-*ć* 'become hoarse (telic)' – *za-chryp*-/ɲɛ̃/-*t-y* 'hoarse'.

The passive found in (18c) is a participle of the verb *po-szarz-e(j)-ć* 'to become grey' (19c), which is an *ej*-unaccusative. The passives of *ej*-verbs are much more uniform in their realization than the passives based on the *ną/∅*-class. They are always *t*-passives. Exactly like their verbal bases

they show the palatalization of the stem-final consonant, cf. *sza*/r/-*y* 'grey-NOM.SG.MASC'/ 'grey' – *po-sza*/ʒ/-*e(j)-ć* 'a little grey-TH-INF'/'become a little grey' – a *po-sza*/ʒ/-*a-ł-y* a 'little-grey-TH-PASS-NOM.SG.MASC'/'that became grey', where the rhotic /r/ is palatalized to a post-alveolar /ʒ/. Unlike their verbal bases, the passives of *ej*-verbs consistently retain the thematic vowel /a/. As has been demonstrated in (14b) above, the *ej*-verbs show the alternation between thematic /a/ and /ɛ/. The said alternation will be thoroughly analyzed below.

Passives based on unaccusative verbs share exponent *-ł-* /ł/ with active verbal *ł*-participles found in the preterite (20a), conditionals marked with exponent *-by-* /bɨ/ (20b), and analytic future constructions (20c), where they follow a future copula *będ-* /bẽd/ 'will'.

(20)		Active verbal *ł*-participle	Passive adjectival *ł*-participle
	a.	*o-głuch-ł-em* /ɔgłuxłɛm/	*o-głuch-ł-e* /ɔgłuxłɛ/
		TEL-deaf-PTCP-1SG.MASC	TEL-deaf-PASS-NOM.PL.NONVIR
		'I became deaf'	'that became deaf'
	b.	*o-głuch-ł-a-by-ś* /ɔgłuxłbɨ/	*o-głuch-ł-a* /ɔgłuxła/
		TEL-deaf-PTCP-FEM-COND-2SG	TEL-deaf-PASS-NOM.SG.FEM
		'you would become deaf'	'that became deaf'
	c.	*będzi-e łysi-a-ł-a* /bẽdʑɛ łɨɕała/	*wy-łysi-a-ł-a* /vɨłɨɕała/
		be.FUT-3SG-bald-TH-PTCP-3SG.FEM	TEL-bald-TH-PASS-NOM.SG.FEM
		'she will become bald'	'that became bald'

The forms to the left in (20) inflect for person and do not inflect for case, which indicates that they are categorized as verbs. Moreover, they do not possess passive semantics: they do not denote properties brought about by particular changes of state but rather (potential) changes of state themselves.

To account for the semantic and syntactic differences between the active verbal *ł*-participles and passive adjectival *ł*-participles I will claim that the latter, but not the former, possess a categorizing head A in their structure. The A-head introduces static semantics into the representation.[14] I will assume that both classes of participles in question possess a Par-

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[14] To be more precise, I assume that the A-head introduces one of the two stativizers postulated by Kratzer (2000) and presented below.

    (i) $\lambda R \lambda s \exists e R(s)(e)$

    (ii) $\lambda P \lambda t \exists e [P(e) \ \& \ \tau(e)t]$

The operator in (i) is attested in target state passives and attaches only to predicates that possess a semantic state argument. Stativizer (ii) is an aspectual operator found in resultant state passives. It says roughly that a given property holds for every time

ticipal head (Prt-head), which is realized as exponent *-ł-* /ł/. The two
Prt-heads differ in the specification for feature [+/-active].

Since passive *ł*-participles and *t*-participles do not differ syntactically,
I will assume that the Prt$_{[-act]}$ and A-heads are also present in *t*-passives.
The distribution of exponents *-ł-* /ł/ and *-t-* /t/ in participles based on
unaccusatives is dependent on the morphophonological properties of the
base verb and will be addressed in the following section.

I follow Bruening (2014) in analyzing arguments in adjectival passives
as lambda abstractors that move to the specifier of the categorizing pro-
jection. A revised representation of an adjectival participle *po-czerni-a-ł-y*
/pɔtʃɛrɲałɨ/ 'that became a little black' based on the unaccusative degree
achievement verb is presented in (21).[15]

(21)
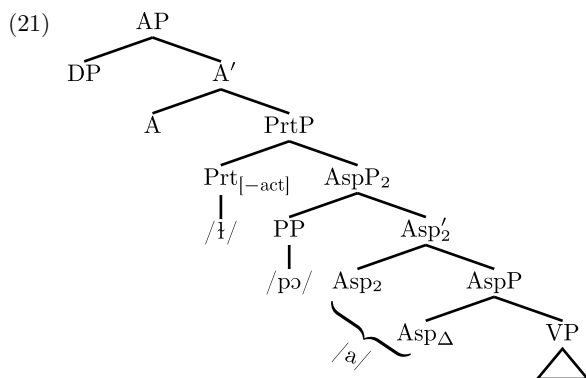
3.2. Passives of transitive verbs

The following sentences illustrate the four morphologically distinct types
of participles based on transitive verbs.

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that follows time *t*, thus enforcing the irreversible-state denotation characteristic of
resultant state passives (see Kratzer 2000; Alexiadou et al. 2015 for discussion).

[15] It must be made clear that there exist unaccusative verbs which, unlike most degree
achievements, take lexical prefixes and may form Secondary Imperfectives. Forms
such as *u-pad-ł-y* 'fallen', *u-mar-ł-y* 'dead', *wy-mar-ł-y* 'extinct', *po-leg-ł-y* 'fallen in
battle' are based on unaccusative telic verbs, possibly semelfactives, that do not
possess the [Δ]-operator introducing the degree achievement semantics. On the other
hand, participles such as *po-ros-ł-y* 'covered', *wy-ros-ł-y* 'grown tall', *wy-marz-ł-y*
'frozen', *prze-marz-ł-y* 'frozen to the core', *od-marz-ł-y* 'frost-bitten' or *prze-mok-
nię-t-y* 'drenched' are most likely based on telic unaccusative degree achievements
marked with features [Δ] and [telic].

(22) a. Późni-ej   zost-a-ł   **za-pomni-a-n-y**,
      late-COMP get-TH-PTCP-3SG.MASC for-mention-TH-PASS-NOM.SG.MASC

      a   partytur-a   za-ginę-ł-a.
      and score-NOM.SG behind-lose-PTCP-3SG.FEM

      'Later he was forgotten, while the (music) score was lost.'

   b. Dzielnic-a   zost-a-ł-a   **o-cal-on-a**.
      district-NOM.SG get-TH-PTCP-3SG.FEM about-whole-PASS-NOM.SG.FEM

      'The district was saved.'

   c. za-myk-aj-ą   się okn-a,   któr-e
      behind-rush-TH-PRS.3PL REFL window-ACC.PL which-ACC.PL.NONVIR

      by-ł-y   **ot-war-t-e**
      be-PTCP-3PL.NONVIR away-close-PASS-NOM.SG.NONVIR

      'Windows which were opened close.'

   d. ... kto-ś,   kto   o   tym   za-pomn-i,
         who.NOM-INDF who.NOM.SG about this-DAT.SG for-mention-PRS.3SG

      moż-e   zost-a-ć   **u-szczyp-nię-t-y**
      may-PRS.3SG get-TH-INF TEL-pinch-TH-PASS-NOM.SG.MASC

      '...a person who forgets might be pinched.'

The participle *za-pomni-a-n-y* 'forgotten' in (22a) is an example of an *n*-passive. Passives such as *za-pomni-a-n-y* are based on *e*-verbs (23a), *aj*-verbs (23b) in and *ow-aj*-verbs (23c), as well as *a*-verbs (23d) and a subclass of athematic verbs such as *wy-śmia-ć* (23e).

(23)   Infinitive   Passive
   a. *za-pomni-e-ć* /zapɔmɲɛtɕ/   *za-pomni-a-n-y* /zapɔmɲanɨ/
      for-mention-TH-INF   for-mention-TH-PASS-NOM.SG.MASC
      'forget'   'forgotten'
   b. *za-trzym-a(j)-ć* /zatʃɨmatɕ/ *za-trzym-a-n-y* /zatʃɨmanɨ/
      for-hold-TH-INF   for-hold-TH-PASS-NOM.SG.MASC
      'stop'   'stopped'
   c. *druk-ow-a(j)-ć* /drukɔvatɕ/   *druk-ow-a-n-y* /drukɔvanɨ/
      print-VERB-TH-INF   print-VERB-TH-PASS-NOM.SG.MASC
      'print'   'printed'
   d. *po-liz-a-ć* /pɔlizatɕ/   *po-liz-a-n-y* /pɔlizanɨ/
      a little-lick-TH-INF   a little-lick-TH-PASS-NOM.SG.MASC
      'lick'   'licked a little'
   e. *wy-śmia-ć* /vɨɕmʲatɕ/   *wy-śmia-n-y* /vɨɕmʲanɨ/
      out-laugh-INF   out-laugh-PASS-NOM.SG.MASC
      'laugh at sb.'   'laughed at'

The participle *o-cal-on-a* 'saved, fem' found in (22b) belongs to the sub-class of *on*-passives. Such passives are formed from *i*-verbs (24a) and those *Ø*-verbs whose stems terminate in obstruents (24b). The characteristic feature of *on*-passives is the alternation of vowel /ɔ/ with /ɛ/ attested in virile forms of the participles. The analysis of the alternation will be postponed till section 4.3.

(24)   Infinitive   Passive
    a.   *o-cal-i-ć* /ɔtsalitɕ/   *o-cal-on-a* /ɔtsalɔna/
         about-whole-TH-INF   about-whole-PASS-NOM.SG.FEM
         'save'   'saved'
    b.   *gryź-ć* /grɨɕtɕ/   *gryź-on-y* /grɨʑɔnɨ/
         bite-INF   bite-PASS-NOM.SG.MASC
         'bite'   'bitten'

T-passive participles such as *o-twar-t-e* /ɔtfartɛ/ 'opened, non-vir' (22c) are based on athematic verbs whose stems terminate in sonorant consonants. They differ from most *t*-passives in the absence of exponent *-nǫ-* /nɔ̃/. *T*-passives such as *u-szczyp-nię-t-y* /uʃtʃɨpɲɛ̃tɨ/ 'pinched' (22d) are based on transitive (typically semelfactive) *nǫ*-verbs and show the same segmental alternations as the passives based on *nǫ*-unaccusatives: the nasal consonant surfaces as the prepalatal /ɲ/, while the nasal vowel /ɔ̃/ is fronted to /ɛ̃/.

The structure of participles based on transitive verbs differs from the structure of adjectival passives of unaccusatives in the presence of the external argument introducing Voice projection. (25) below illustrates the revised representation of an adjectival passive *po-czerni-on-y* /pɔtʃɛrɲɔnɨ/ 'that was blackened an little' based on a transitive verb *po-czern-i-ć* 'blacken a little'. The exponent *-on-* /ɔn/ is assumed to realize the aspectual layer as well as the higher Voice and Prt-heads.

(25)
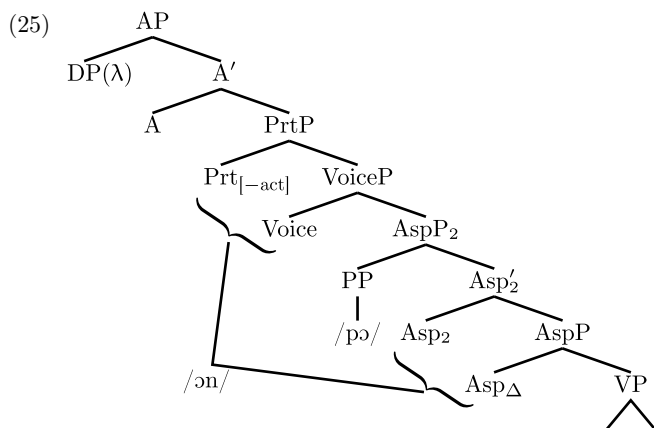
4. The morophophonology of Polish passives

The following section is preoccupied with the formal account of the facts concerning the exponence of Polish passive participles that have been discussed above. Section 4.1. outlines the general assumptions concerning the realization of syntactic structures by means of phonological exponents and summarizes the relevant details of the phonological frameworks assumed in this study. Section 4.2. discusses the exponence of the passives based on unaccusative verbs. In section 4.2.1. I address the question as to why the alternation between vowels /ɛ/ and /a/ attested in *ej*-verbs is not carried over to the passives based on this class. Section 4.2.2. is preoccupied with the exponence of passives based on unaccusative verbs found in ∅/*nǫ*-class. Section 4.2.3. contains a proposal concerning the preference among speakers to use *t*-participles over the use of *ł*-participles as passives of many *nǫ*-class unaccusatives. Section 4.3. is entirely devoted to the details of the exponence of passives based on transitive verbs.

4.1. Assumptions about exponence and phonology

The key features of an approach to lexical insertion assumed here are enumerated in (26).

(26) a. late insertion: phonological features are supplied after the morpho-syntactic computation has been performed (Halle & Marantz 1993; Embick & Noyer 2006)

   b. vocabulary items may be underspecified with respect to the structure they realize

c. Vocabulary Insertion (VI) proceeds in accordance with the Subset Principle (Halle 1997, 428): (i) overspecified vocabulary items always lose; (ii) where two or more items can realize the structure, the better specified item wins out

d. VI proceeds in a bottom-up, i.e., root-outward, fashion

e. the insertion of vocabulary results in the rewriting and discharging of the grammatical features (see Bobaljik 2000)

Unlike the classic version of Distributed Morphology, I assume that groups of terminal nodes may be realized by means of a single exponent. This has been postulated in Starke (2005); Jabłońska (2007); Caha (2009) and Bye & Svenonius (2012) among others. Let me also assume that the Subset Principle applies not only to the featural make-up of terminal nodes, but also to larger chunks of the morpho-syntactic tree. To clarify this claim, let me discuss how a schematic morpho-syntactic representation depicted in (27) is realized by a set of vocabulary items presented in (28).

(27)
```
            D
          /   \
        D       C
              /   \
            C       B
                  /   \
                B       A
```
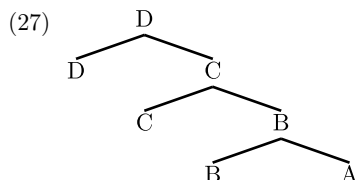
(28) a. $\{A\} \leftrightarrow /E_1/$ e. $\{A,C\} \leftrightarrow /E_5/$ i. $\{A,C,B\} \leftrightarrow /E_9/$
      b. $\{A,B\} \leftrightarrow /E_2/$ f. $\{A,B,F,C,D\} \leftrightarrow /E_6/$
      c. $\{B,C\} \leftrightarrow /E_3/$ g. $\{C,D\} \leftrightarrow /E_7/$
      d. $\{A,B,C\} \leftrightarrow /E_4/$ h. $\{D\} \leftrightarrow /E_8/$

The vocabulary items which could possibly realize node A are items (a), (b), (d), (e), (f) and (i). Due to a bottom-up nature of VI, these items are first to be taken into consideration for the realization of (27). Provided that the specification of A in (27) and in the relevant vocabulary items is non-contradictory, the competing vocabulary items are compared against the bigger structure dominating A. Vocabulary item (28i) is eliminated as it does not conform to the order of the nodes attested in (27). Item (28f) is overspecified and cannot realize the representation in (27). Effectively, the only candidates left are candidates (a), (b), (d) and (e). Since E(xponent)$_4$ (28d) is the best-specified one, i.e., it matches the biggest number of nodes, it is selected and inserted. Since (28d) is specified to realize the representation up to and including node C, the insertion of vocabulary items (c) and (g) is bled. Node D is realized by E(xponent)$_8$ (28h).

Before I move on to the presentation of the phonological framework this study is couched in, a brief comment on the notation employed below is necessary. In what follows, it is often the case that certain morpho-syntactic heads mentioned in the vocabulary items are presented in parentheses. For instance, the entry that realizes the aspectual layer in *e/ej*-verbs as the thematic element /ɛj/ mentions the Asp-head, the Asp_2-head and the Voice head. The last two heads, however, are presented in parentheses (see (29) and (34c) below for full formulation).

(29) $\{Asp_{[+\alpha,+\beta]},(Asp_2),(Voice)\} \leftrightarrow$ /ɛj/

As has been correctly pointed out by one of the reviewers, were such a notation interpreted as referring to the optional presence of a given head in the structure, the formulation of vocabulary items employed in this study would effectively but undesirably defuse one of the key assumptions about exponence made above: a given vocabulary item cannot realize the structure which does not contain the head or the feature that this item mentions.

However, the parenthesis notation utilized below is not intended to introduce the concept of optional reference to features or heads. Parentheses are used here as a purely notational device which serves a graphic representation of the homophony of two or more sequences of heads. The extended form of the vocabulary item found in (29) is presented in (30).

(30) $\left.\begin{array}{ll} \text{a.} & \{Asp_{[+\alpha,+\beta]},\ Asp_2,\ Voice\} \\ \text{b.} & \{Asp_{[+\alpha,+\beta]},\ Asp_2\} \\ \text{c.} & \{Asp_{[+\alpha,+\beta]},\ Voice\} \\ \text{d.} & \{Asp_{[+\alpha,+\beta]}\} \end{array}\right\} \leftrightarrow$ /ɛj/

(30) presents a set of four formal syntactic representations unified by the presence of aspectual head marked for features $[+\alpha,+\beta]$, which percolate the Asp-head from the V-head. All the items mentioned in (30) compete for the realization of the aspectual level in the relevant representations and their selection is regulated by the factors described above. Thus, entries (30a) and (30c) will never be selected for insertion in unaccusatives, while the pair (30a) and (30b) will be selected only in the structures containing a quantificational prefix (Asp_2-head).

(30) makes a claim that initially may seem unattractive. Namely, it implies that it is a lexical accident that the aspectual representation of verbs belonging to one and the same class are realized by means of one and the same exponent. This in turn implies that the aspectual representations

of verbs belonging to the same class might well be realized by different exponents, depending on whether a given verb is transitive or carries more complex aspectual marking etc. In my view such implications are neither unusual nor undesirable given the general arbitrariness of relations between the syntax and phonological. As will be demonstrated below, situations in which the aspectual layer of a given verb receives different realizations depending on certain contextual factors are well attested in Polish.

To address the issue of the morphophonological alternations found in Polish passives some basic assumptions concerning the representation of Polish consonants and vowels must be discussed.

The representations of Polish segments couched within Element Theory (Kaye et al. 1990; Harris 1994; Gussmann 2007; Cyran 2010) are presented in (31).

(31)

labials	/p/-{U.ʔ.h}	/b/-{U.ʔ.h.L}	/f/-{U.h.}	/v/-{U.h.L}	/m/-{U.ʔ.L}
palato-labials	/pʲ/-{U.I̲.ʔ.h}	/bʲ/-{U.I̲.ʔ.h.L}	/fʲ/-{U.I̲.h.}	/vʲ/-{U.I̲.h.L}	/mʲ/-{U.I̲.ʔ.L}
dentals	/t/-{A.ʔ.h}	/d/-{A.ʔ.h.L}	/s/-{A.h}	/z/-{A.h.L}	/n/-{A.ʔ.L}
dental affricates	/ts/-{A̲.I.ʔ.h}	/dz/-{A̲.I.ʔ.h.L}			
alveolars/ retroflexes	/tʃ/-{A.I.ʔ.h}	/dʒ/-{A.I.ʔ.h.L}	/ʃ/-{A.I.h}	/ʒ/-{A.I.h.L}	/ɳ/-{A.I.ʔ.L}
prepalatals	/tɕ/-{A.I̲.ʔ.h}	/dʑ/-{A.I̲.ʔ.h.L}	/ɕ/-{A.I̲.h}	/ʑ/-{A.I̲.h.L}	/ɲ/-{A.I̲.ʔ.L}
velars	/k/-{__.ʔ.h}	/g/-{__.ʔ.h.L}	/x/-{__.h}	/ŋ/-{__.ʔ.L}	
palato-velars	/c/-{I̲.ʔ.h}	/ɟ/-{I̲.ʔ.h.L}	/ç/-{I̲.h}		
coronal sonorants	/r/-{A}	/rʲ/-{A.I}	/l/-{A.I̲.ʔ}	/ł/-{U̲.A.ʔ}	/j/-{I̲}

The above representations follow most of the standard assumptions about segmental representations assumed by the proponents of Element Theory. Polish velars are assumed not to be marked for resonance or place elements (Gussmann 2007; Cyran 2010). One of the elements is the representation may play the role of the head. This is usually an element which contributes most prominently to the overall acoustic patterns of the segment. The head elements are underscored.

(32) contains the representation of Polish vowels.

(32)	Vowel	Representation	Examples	Glosses (all nouns in Nom., sg.)
	/i/	{I}	/i/*gła, l*/i/*tr, g*/i/*ps*	'needle, litre, plaster'
	/ɨ/	{I}	*r*/ɨ/*ba, t*/ɨ/*p*	'fish, type'
	/ɛ/	{I.A}	*t*/ɛ/*st, pi*/ɛ/*ń*	'test, tree trunk'
	/a/	{A}	*t*/a/*ma, cz*/a/*s*	'dam, time'
	/ɔ/	{U.A}	*r*/ɔ/*k,* /ɔ/*ko*	'year, eye'
	/u/	{U}	*n*/u/*ta, c*/u/*d*	'note, miracle'
	/ɛ̃/	{I.A.L}	*k*/ɛ̃/*s,* /ɛ̃/*zym, r*/ɛ̃/*ka*	'bit, enzyme, arm'
	/ɔ̃/	{U.A.L}	*w*/ɔ̃/*ż, p*/ɔ̃/k	'snake, bud'

Many of the morphophonological alternations attested in passives discussed above will be treated as the integration of floating elements into the structure of the segments. Such an integration of elements often results in ill-formed structures, which provoke the application of certain repair strategies. To present one example, the alternation between /ɔ̃/ and /ɛ̃/ found in the thematic element *-ną-* /nɔ̃/ will be argued to be the consequence of the integration of element |I| into the structure of the vowel /ɔ̃/. The integration results in the existence of a vowel composed of elements |I| and |U|. Polish does not accept such a combination and the structure must be repaired. The strategy that Polish employs to repair the structure is to delink element |U|, thus giving rise to /ɛ̃/. However, this solution is definitely not the only logically possible repair. Freshly integrated |I| could be delinked as well. One should also ask a question why |I| should be integrated at all if such an integration leads to the formation of an unwarranted configurations, i.e., {I.U}. What is, therefore, necessary, for such a method of description to be complete is an efficient approach to the choice of repair strategies in a given language.

Current phonological literature offers several frameworks that formalize the choice of the repair strategies in different languages in different contexts. For the purpose of this study I will employ the parallel version of Optimality Theory (Prince & Smolensky 2004), which accounts for the existence of preferences in repair strategies within linguistic systems by assuming that phonological representations are evaluated with respect to the well-formedness conditions (constraints) of unequal status. Thus, apparently, in Polish the constraint that bans the combination of |I| and |U| and the constraint that forces |I| to be linked are more important/ranked higher than the constraint that forces |U| to be linked, etc. (see below for details).

4.2. Passives based on unaccusatives

In (33) I illustrate five relevant subclasses of unaccusative verb–participle pairings, which should be isolated taking into consideration the details of their exponence.

(33)   Infinitive   Passive
    a.   *z-grubi-e(j-)ć* /zgrubʲɛtɕ/   *z-grubi-a-ł-y* /zgrubʲaɫɨ/
            TEL-thick-TH-INF   TEL-thick-TH-PASS-NOM.SG.MASC
            'become thick'   'that became thick'
    b.   *prze-siąk-ną-ć* /pʃɛɕɔ̃knɔ̃tɕ/   *prze-siąk-nię-t-y* /pʃɛɕɔ̃kɲɛ̃tɨ/
            over-staurate-Th-INF   over-saturate-TH-PASS-NOM.SG.MASC
            'become saturated'   'saturated
    c.   *u-cich-ną-ć* /utɕixnɔ̃tɕ/   *u-cich-ł-y* /utɕixłɨ/
            at-quiet-TH.INF   at-quiet-PASS-NOM.SG.MASC
            'become silent'   'that became silent'
    d.   *u-paś-ć* /upaɕtɕ/   *u-pad-ł-y* /upadłɨ/
            at-fall-INF   at-fall-PASS-NOM.SG.MASC
            'fall'   'fallen'
    e.   *z-gni(j)-ć* /zgɲitɕ/   *z-gni(j)-ł-y* /zgɲiłɨ/
            TEL-rot-INF   TEL-rot-PASS-NOM.SG.MASC
            'rot'   'rotten'

Pair (33a) illustrates an infinitive and the passive of an *ej*-verb. Subclasses (33b–d) are all members of the *ną/Ø*-class and differ as to the presence and absence of exponent *-ną-* in the passive, infinitive and the active *ł*-participle of the relevant verb. Section 4.2.1. focuses on the exponence of the participles based on *ej*-verbs. Section 4.2.2. focuses on the morphophonology of participles of *ną/Ø*-verbs.

4.2.1. The participles based on *e/ej*-verbs

Vocabulary items responsible for the realization of the *e/ej*-verb *z-grubi-e(j)-ć* 'become thick' and the participle *z-grubi-a-ł-y* 'that became thick' are presented in (34).

    Vocabulary item (34a) realizes the root. The V-head is realized as a palatalizing autosegment responsible for the mutation of stem-final consonants in *e/ej*-verbs as well as *i*-verbs.[16] Vocabulary item (34c) maximally

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[16] In fact the realization of the V-head is more complex and vocabulary item (34b) should be viewed as the elsewhere variant rather than the only exponent of V in [+α]-verbs. The V may be realized as a combination of elements {A.I} if the stem

realizes the functional sequence starting with the Asp-head up to and including the Voice head. Such a sequence of heads is rewritten as /ɛj/ in all *e/ej*-verbs in the environment of feature [+masculine-personal] and in the Infinitive. Exponent /ɛj/ is also responsible for rewriting the aspectual projection(s) in relevant degree achievement verbs (Voice-less verbs marked with [Δ]) in the non-past paradigms and the Imperative. If the environment is not met, the default exponent /a/ is selected. Vocabulary item (34d) is the default realization of the Prt-head. The A-head attested in the passive is realized as zero (34e).

(34) a. √GRUB ↔ /grub/

b. $V_{[+\alpha]}$ ↔ |I̲|

c. {Asp, (Asp$_2$), (Voice)} ↔ $\begin{Bmatrix} /\varepsilon j/ \Big/ \_\_\_ \begin{Bmatrix} [+\text{masc-pers.}] \\ \text{Inf} \\ \text{Imp}_i \\ [-\text{past}]_i \end{Bmatrix} \\ /a/ \end{Bmatrix}$
   |
   [+α, +β, (Δ)$_i$]

d. {Prt} ↔ /ɫ/

e. {A} ↔ ∅

In sum, in the participle *z-grubi-a-ɫ-y* 'that became thick' the root and the V-head will be realized by the vocabulary items (34a–b). The aspectual heads will be realized as /a/, while the Prt and A-heads will be realized as /ɫ/ and zero, respectively. The exponence of the relevant participle is presented in (35).

Polish active verbal *ɫ*-participles belonging to the conjugation class of *e/ej*-verbs show a thematic vowel alternation between /a/ and /ɛ/ in virile forms (see (36)).

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terminates in a velar, as stem-final velars alternate with post-alveolars in [+α]-verbs (/k/→/tʃ/, /g/ → /dʒ/, /x/ → /ʃ/). Moreover, in some morpho-syntactic contexts dental plosives and dental fricatives undergo the process referred to as Iotation and give rise to dental affricates (/t/→/ts/, /d/→/dz/) and postalveolar fricatives (/s/→/ʃ/, /z/→/ʒ/). This happens, e.g., in the passives participles of *i*-verbs and suggests that in such contexts the V-head may be realized as a combination of elements {A̲.I} that triggers Iotation (see Zdziebko 2015 for details).

(35)
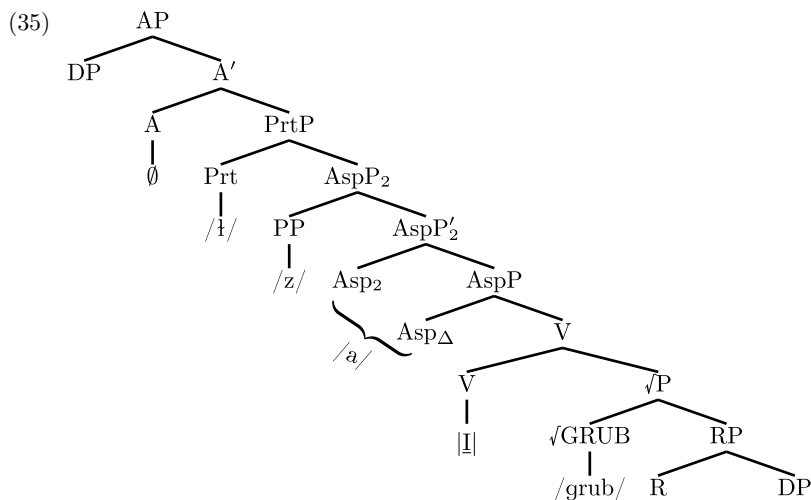
(36) Non-virile forms   Virile forms

myśl-/a/-/ł/-y-śmy   myśl-/ɛ/-/l/-i-śmy
think-TH-PTCP-NONVIR-1PL   think-TH-PTCP-VIR-1PL
'we thought'   'we thought'

jęcz-/a/-/ł/-y-ście   jęcz-/ɛ/-/l/-i-ście
moan-TH-PTCP-NONVIR-2PL   moan-TH-PTCP-VIR-2PL
'you moaned'   'you moaned'

po-siwi-/a/-/ł/-y-śmy   po-siwi-/ɛ/-/l/-i-śmy
a little-grey-TH-PTCP-NONVIR-1PL   a little-grey-TH-PTCP-VIR-1PL
'we became grey'   'we became grey'

z-barani-/a/-/ł/-y   z-barani-/ɛ/-/l/-i
TEL-ram-TH-PTCP-NONVIR-3PL   TEL-RAM-TH-PTCP-VIR-3PL
'they went dumb'   'they went dumb'

z-głupi-/a/-/ł/-y-ście   z-głupi-/ɛ/-/l/-i-ście
TEL-stipid-TH-PTCP-NONVIR-2PL   TEL-stipid-TH-PTCP-VIR-2PL
'you became stupid'   'you became stupid'

On traditional assumptions the alternation falls within the scope of the rule
of Backing and Lowering reproduced in (37) after Gussmann (1980, 65).

(37) $\begin{bmatrix} +\text{syll} \\ -\text{high} \\ +\text{tense} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{back} \\ +\text{low} \end{bmatrix} \Big/ \underline{\quad} \begin{bmatrix} +\text{coron} \\ +\text{back} \end{bmatrix}$

(37) says that Polish front mid tense vowels undergo the process of Backing
and Lowering (B&L) when they are followed by a non-palatalized conso-

nant (in the relevant case /ł/). Rule (37) must be ordered **after** the rule of Palatalization (Gussmann 1980, 20) which turns /ł/ into /l/. Were this not the case, rule (37) would apply in virile forms in (36) deriving /a/ from /ɛ/ and no alternation in *e/ej*-verbs would ever be attested.

However, there are considerations which speak against B&L being a synchronic rule of Polish phonology. Firstly, B&L involves an undesirable degree of abstractness. Note that the rule makes an explicit assumption that Polish distinguishes between tense and lax vowels. The reference to feature [±tense] in the structural description of the rule is necessary as not all /ɛ/'s surface as /a/'s before non-palatal consonants. Some /ɛ/'s alternate with /ɔ/'s. These are claimed by Gussmann (1980) to be specified as [−tense]. There are also many surface sequences composed of /ɛ/ and non-palatal consonants in Polish ((38) presents selected examples).

(38) *kobi*/ɛt/-*a*   *dzi*/ɛł/-*o*
      woman-NOM.SG   work-NOM.SG
      'woman'   'work of art'
      bi/ɛd/-*a*   *tl*/ɛn/
      poverty-NOM.SG   oxygen.NOM.SG
      'poverty'   'oxygen'
      ści/ɛr/-*a*   *c*/ɛn/-*a*
      cloth-NOM.SG   price-NOM.SG
      'cloth, (expressive)' 'price'
      bi/ɛs/   *cz*/ɛs/-*a-ć*
      devil.NOM.SG   comb-TH-INF
      'devil'   'comb'

The data found in (38) are particularly problematic for the original rule-driven analysis presented in Gussmann (1980) as it predicts that every /ɛ/ in Polish should be backed. Furthermore, /ɛ/'s specified as [+tense] are claimed to be lowered to /a/, while those /ɛ/'s which carry [−tense] specification should be rounded to /ɔ/. In short, Gussmann's original analysis does not allow for non-alternating /ɛ/'s to be found in Polish.[17]

Importantly, the tense–lax distinction is not phonetically real in Polish. As a matter of fact, there is no reason to assume that the /ɛ/'s which are backed and lowered are marked as [+tense], while other kinds of /ɛ/'s are [−tense]. The specification could well be reversed as it has never been reported that [+tense] vowels are likely to show susceptibility to alter-

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[17] Gussmann (1980, 143) refers to the items of the type presented in (38) as "positive exceptions to Backing".

nations along the dimensions of height and backness, or that they show particular sensitivity to the type of consonantal environment. In sum, there is no phonetic or phonological reality behind the claim that it is tense /ɛ/'s that undergo Backing and Lowering.[18]

Apart from involving an unjustified degree of abstractness, Backing and Lowering analysis of the /ɛ/–/a/ alternation encounters several sets of counterexamples. A set that is particularly relevant for the topic of this paper are the adjectival passives based on *ej*-verbs which contain /a/ despite the fact that the following consonant is palatalized (see (39)).

(39) Virile active *ł*-participle   Virile adjectival passive

    o-siwi-/ɛ/-/l/-*i*   *o-siwi-*/a/-/l/-*i*

    TEL-grey-TH-PTCP-VIR-3PL   TEL-grey-TH-PASS-NOM.PL.VIR

    'they became grey-haired'   'that became grey-haired'

    z-barani-/ɛ/-/l/-*i*   *z-barani-*/a/-/l/-*i*

    TEL-ram-TH-PTCP-VIR-3PL   TEL-ram-TH- PASS-NOM.PL.VIR

    'they became dumb'   'that became dumb'

    o-głupi-/ɛ/-/l/-*i*   *o-głupi-*/a/-/l/-*i*

    TEL-stupid-TH-PTCP-VIR-3PL   TEL-stupid-TH- PASS-NOM.PL.VIR

    'they became stupid'   'that became stupid'

    z-niewieści+/ɛ/+/l/+*i*   *z+niewieści*+/a/ +/l/ +*i*

    TEL-woman-TH-PTCP-VIR-3PL   TEL-woman-TH- PASS-NOM.PL.VIR

    'they became effeminate'   'effeminate'

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[18] One of the reviewers argues that the situations where phonological behaviour does not tally with the phonetic shape of a segment are not rare cross-linguistically and that "phonetic 'realness' is not a solid basis for an analysis of phonological features". The reviewer brings up the cases of palatalizing vs. non-palatalizing /i/ in North American languages as well as the cases of 'virtual length' of the Romance /ɛ/ as examples of, in his/her opinion, convincing mismatches between the phonological behaviour and phonetics. There is, however, an important difference between the cases brought up by the reviewer and the case of [±tense] distinction in Polish. The fact that back vowels tend not to palatalize consonants or the observation that long vowels tend to be dispreferred in checked syllables are cross-linguistically stable phonological correlates of backness and length. Being backed and lowered before non-palatal consonants is not a cross-linguistically stable correlate of being a tense vowel or, in fact, of any known phonological feature. Whereas non-palatalizing /i/'s in Inuktitut, Cree or Ojibwe and virtually long Romance /ɛ/'s may be analyzed as such because they show the behaviour which we know is typical of non-front and long vowels, analyzing relevant Polish vowels as [+tense] is completely arbitrary. Once again, there is no known phonological property that is cross-linguistically correlated with being non-front and low before non-palatal consonants. Hence, any attempt at an 'abstract' analysis of /ɛ/–/a/ alternation will necessarily be stipulative in nature.

Considering the data in (39), the rule ordering that derived the correct output in (36) is now problematic. The derivation of passives in (39) presents a case of counter-bleeding opacity (Kiparsky 1973; Baković 2011). The Palatalization rule is expected to bleed the Backing and Lowering, as it does in (36). However, the *ł*-passives in (39) surface with a non-front lowered vowel. The problematic derivation for the adjectival passive *o-siwi-*/a/-/l/-*i* 'that became grey-haired' is presented in (40a) alongside the derivation of the active *ł*-participles *o-siwi-*/ɛ/-/l/-*i* 'they became grey-haired' (40b), whose behaviour is correctly predicted by the B&L analysis.

(40)	a. adjectival passive	b. active *ł*-participle
Input	/ɔ-ɕiv-ɛj-ł-i/	/ɔ-ɕiv-ɛj-ł-i/
Palatalization	/ɔ-ɕivʲ-ɛj-l-i/	/ɔ-ɕivʲ-ɛj-l-i/
j-Deletion	/ɔ-ɕivʲ-ɛ-l-i/	/ɔ-ɕivʲ-ɛ-l-i/
Backing and Lowering	not applicable	not applicable
Output	*[ɔɕivʲɛli]	[ɔɕivʲɛli]

The input representations of the adjectival passives and the active verbal *ł*-participles in (40) is exactly the same. The exponents of agreement features, i.e., /i/, trigger the palatalization of the participal marker -*ł*- /ł/ in both classes of participles. The rule of *j*-Deletion (Gussmann 1980, 47) erases /j/ before consonants, thus the exponent -*ej*- /ɛj/ surfaces as /ɛ/ in the forms under considerations. Crucially, Backing and Lowering should be unavailable in both types of participles as the rule ordering postulated by Gussmann is exactly the same for adjectival *ł*-passives and active *ł*-participles: Palatalization precedes B&L and should bleed its application. The adjectival passive *o-siwi-*/a/-/l/-*i* 'that became grey-haired' is predicted to surface as [ɔɕivʲɛli] but the attested surface form is [ɔɕivʲali].

On the basis of the above considerations I will conclude that B&L is not a valid phonological generalization about Polish and that the /ɛ/–/a/ altenation attested in the *ł*-participles of *e/ej*-class should be accounted for with reference to the vocabulary item (34c) and the approach to cyclic spell-out presented in Embick's (2010) work.

Embick (2010) follows earlier works, e.g., Embick & Marantz (2008), in assuming that the merger of categorizing heads, V, A and N triggers the spell-out of the cyclic domain the relevant head dominates. A cyclic domain is composed of a lower cyclic head, its complement and the 'edge+' nodes intervening between the two categorizing heads. The complement of the cyclic head undergoes phonological and semantic interpretation, while the spell-out triggering head itself undergoes vocabulary insertion only at the subsequent cycle. One of the consequences of such a procedure is that the

material introduced above the spell-out triggering head cannot be referred to for the purposes of contextual allomorphy of the nodes present in the complement of the cyclic head.

The consequence of the application of cyclic spell-out to the representation of an adjectival passive based on an *e/ej*-verb is the insertion of the default exponent of the aspectual layer, i.e.,/a/ (see (41), the material that undergoes spell out at the first cycle has been separated with a curved line). This is the case as, according to the vocabulary item (34c) repeated below as (42), the insertion of the phonological sequence /ɛj/ is sensitive to the presence of the feature [+masculine-personal] defining virile gender. Since the feature [+masculine-personal] is introduced only at the subsequent cycle above the spell-out-triggering A-head, the feature is not available as the context of allomorphy in adjectival passives. As a consequence it is the default affix /a/ that must rewrite the aspectual layer in (41).

(41)

$$(42) \quad \{Asp, (Asp_2), (Voice)\} \leftrightarrow \left\{ \begin{array}{l} /\varepsilon j/ \ \Big/ \ -\!\!- \ \left\{ \begin{array}{l} [+\text{masc-pers.}] \\ \text{Inf} \\ \text{Imp}_i \\ [-\text{past}]_i \end{array} \right\} \\ /a/ \end{array} \right\}$$
$$\begin{array}{c} | \\ [+\alpha, +\beta, (\Delta)_i] \end{array}$$
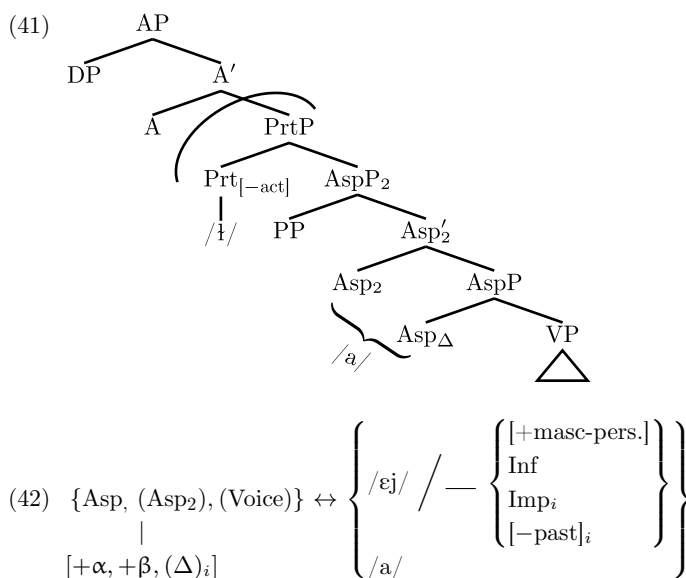
On the other hand, the representation of an active verbal *ł*-participle ((43) below) does not contain the categorizing A-head that would trigger the spell-out of the lower structure. Consequently, the aspectual layer undergoes interpretation together with the agreement features introduced into the structure above the Prt-head. The presence of feature [+masculine-personal] triggers the insertion of exponent /ɛj/. If feature [+masculine-personal] is not present among the agreement features, the default exponent /a/ is inserted.

(43)
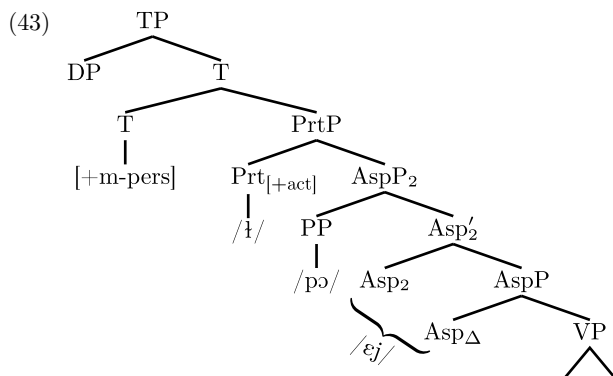
On the current analysis the counter-bleeding effect attested in relation to the /ɛ/–/a/ alternation is the consequence of the syntactic size of adjectival participles. As opposed to active verbal *ł*-participles, adjectival passives contain an embedded cyclic domain within their structure.

The account of the /ɛ/–/a/ alternation that makes reference to the mechanism of cyclic spell-out has one additional advantage over the rule-driven approach. As I have noted above, the claim that it is the [+tense] specification of the vowel /ɛ/ that decides about a given /ɛ/ being backed and lowered is arbitrary as tenseness is not cross-linguistically correlated with being back and low. On the other hand, showing opaque phonological behaviour has been demonstrated to be cross-linguistically correlated with being a participle, or, to be precise, with containing an embedded cyclic domain. For instance, Newell (2008) has demonstrated that the seemingly opaque stress assignment patterns attested in certain (de)-verbal constructions in languages as unrelated as Cupeño and Turkish are the consequence of the complex cyclic structure of these constructions and the application of cyclic spell-out in these languages.[19]

4.2.2. The participles based on *ną/∅*-verbs

The subclasses of *ną/∅*-verbs differing with respect to the context in which they utilize exponent -*ną*- /nɔ̃/ are repeated in (44) for clarity.

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[19] Similar observations have been made by Youngberg (2017) with reference to the properties of Japanese tonal accent. I am grateful to an anonymous reviewer for attracting my attention to these patterns.

(44)   Infinitive   Passive
   a.   *prze-mok-ną-ć* /pʃɛmɔknɔ̃tɕ/   *prze-mok-nię-t-y* /pʃɛmɔkɲɛ̃tɨ/
        over-wet-TH-INF   over-wet-TH-PASS-NOM.SG.MASC
        'become drenched'   'drenched'
   b.   *u-cich-ną-ć* /utɕixnɔ̃tɕ/   *u-cich-ł-y* /utɕixłɨ/
        at-quiet-TH.INF   at-quiet-PASS-NOM.SG.MASC
        'become silent'   'that became silent'
   c.   *u-paś-ć* /upaɕtɕ/   *u-pad-ł-y* /upadłɨ/
        at-fall-INF   at-fall-PASS-NOM.SG.MASC
        'fall'   'fallen'
   d.   *z-gni(j)-ć* /zgɲitɕ/   *z-gni(j)-ł-y* /zgɲiłɨ/
        TEL-rot-INF   TEL-rot-PASS-NOM.SG.MASC
        'rot'   'rotten'

Subclasses (44a–c) all utilize exponent *-ną-* /nɔ̃/ in the non-past paradigm. Below I present the non-past paradigm of the verb *prze-mok-ną-ć* 'become drenched' (44a). Subclasses *u-cich-ną-ć* 'become silent' (44b) and *u-paś-Ø-ć* 'fall' (44c) conjugate exactly like *prze-mok-ną-ć*.

(45) The non-past paradigm of the verb *prze-mok-ną-ć* 'become drenched'
                        Singular   Plural
1st person *prze-mok-n-ę* /pʃɛmɔknɛ̃/   *prze-mok-ni-e-my* /pʃɛmɔkɲɛmɨ/
            over-wet-TH-PRS.1SG   over-wet-TH-PRS-1PL
2nd person *prze-mok-ni-e-sz* /pʃɛmɔkɲɛʃ/   *prze-mok-ni-e-cie* /pʃɛmɔkɲɛtɕɛ/
            over-saturate-TH-PRS-2SG   over-wet-TH-PRS-2PL
3rd person *prze-mok-ni-e* /pʃɛmɔkɲɛ/   *prze-mok-n-ą* /pʃɛmɔknɔ̃/
            over-wet-TH-PRS.3SG   over-wet-TH-PRS.3PL

Affix *-ną-* /nɔ̃/ surfaces with the nasal vowel /ɔ̃/ only in the infinitive, when it is followed by the infinitival marker *-ć* /tɕ/. In the non-past paradigm, the nasal consonant is directly followed by the tense exponent *-e-* /ɛ/.

   This, as well as other properties of exponent *-ną-* /nɔ̃/, may be neatly accounted for if we assume that the relevant sequence is represented as two timing units, the first of which is linked to the consonant /n/. The second timing slot remains unlinked to the melody of the nasal vowel which is lexically floating.[20] When such a representation is concatenated with the representation of the exponent of the infinitive, i.e., *-ć* /tɕ/, the floating

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[20] This assumption is motivated by the fact that verbs in *-ną-* regularly select *-ij-* /ij/ as the Imperative affix. Simplifying things a little, affix *-ij* /ij/ is selected if a verb terminates in a cluster of raising sonority (see Szpyra 1989, 142–158 for details). If /ɔ̃/ is not connected to its skeletal slot at the level where the imperative allomorphy

vowel is forced to link by a constraint MAX ('Realize segments'). The relevant mapping is illustrated in (46).

(46) ×   ×   ×   →   ×   ×   ×
      | | | | |
      n   ɔ̃ tɕ   n   ɔ̃ tɕ

In the cases in which *-ną-* /nɔ̃/ is concatenated with an affix that starts with a vowel, e.g., the non-past tense affix *-e-* /ɛ/, the linking of /ɔ̃/ leads to the violation of the anti-hiatus constraint *VV and a constraint that requires the surfacing of the element |I| responsible for the front quality of vowel /ɛ/. Since these two constraints are ranked higher than constraint MAX, the optimal candidate is the one that does not link the floating /ɔ̃/ at all. The derivation is summarized by the tableaux in (47).

(47)

	*VV	MAX |I|	MAX
× × × | | n ɔ̃ ɛ			
a. nɔ̃ɛ	*!		
b. nɔ̃		*!	*
c. ☞ nɛ			*

Apart from the /ɔ̃/–zero alternation, *-ną-* /nɔ̃/ undergoes two other segmental mutations that have already been mentioned above. As indicated in the transcriptions in (45), the nasal consonant is palatalized in the non-past paradigms except for the 1st person singular and the 3rd person plural. The same palatalization is attested in the adjectival passive, cf. *prze-mok-*/ɲ/ę*-t-y* 'drenched'. In addition to the palatalization, the participal form is affected by the fronting of vowel /ɔ̃/ to /ɛ̃/. In consequence of those mutations, *-ną-* /nɔ̃/ surfaces as *-nię-* /ɲɛ̃/ in passives.

Note that the alternations discussed above do not lend themselves easily to a phonological analysis. The nasal vowel /ɛ̃/ is not a good candidate for a palatalizer. For instance, it does not palatalize exponent *-ną-* /nɔ̃/ in the 1st person singular non-past forms of the relevant verbs (see (45) above). Similarly, the mutation of /ɔ̃/ to /ɛ̃/ cannot be naturally analyzed as triggered by the participal marker *-t-* /t/.

According to the analysis proposed here the segmental alternations are the consequence of the integration of a floating element |I| into the structure of the stem. |I| is assumed to form part of the exponents of the

is decided, every *ną*-verb terminates in an obstruent+/n/ cluster and the selection of the *-ij-* /ij/ allomorph follows quite naturally.

relevant verbs and participles. (48) presents the vocabulary items which realize the verb *prze-mok-ną-ć* 'become drenched' and its corresponding passive participle.

(48) The exponence of subclass *prze-mok-ną-ć* 'become drenched'

a. $\{\sqrt{\text{MOK}},((V_{[-\alpha]})_i, \text{Asp})_{ii}\} \leftrightarrow /\text{mɔk}/ \Big/ \underline{\quad} \begin{cases} [+\text{sp}, -\text{pl}]_i \\ [-\text{part}, +\text{pl}]_i \\ \text{Prt}_{[+\text{act}]ii} \end{cases}$

b. $V_{[-\alpha, -\beta]} \leftrightarrow |\underline{\text{I}}| \Big/ \underline{\quad} \text{Asp}_{[\Delta/\text{SEM}]}$

c. $\{(V_{[-\alpha, -\beta]})_i, \text{Asp}_{[\Delta/\text{SEM}, -\alpha, -\beta]}\} \leftrightarrow /\text{nɔ̃}/ \Big/ \underline{\quad} \text{Inf}_i$

d. $\{(\text{Asp2}),(\text{Voice}),\text{Prt}_{[-\text{act}]}\} \leftrightarrow |\text{I}|\text{t} \Big/ \text{ɔ̃}\underline{\quad}$

The stem exponent /mɔk/ (48a) minimally realizes the root. The same exponent may also realize the V-head in the context of the 1st person singular or 3rd person plural thus bleeding the insertion of entry (48b) responsible for palatalization. In the active *t*-participle the stem exponent /mɔk/ re-writes the root, the V-head and the Asp-head and bleeds the insertion of entries (48b) and (48c), the latter of which realizes the Asp-head or the Asp and the V-head in the infinitive.

If entry (48a) realizes only the root and unless the structure is the Infinitive, the V-head is realized as a palatalizing agent. As evidenced by the properties of most of the palatalization phenomena observed in Polish, the natural direction of the anchoring of such autosegments is to the left. This may be formalized as a consequence of the high ranking of constraint *SPREAD(RIGHT) (*SPR(R)). However, in verbs which realize the Asp-head as *-ną-* /nɔ̃/, palatalization affects the material introduced to the right of the floating element |I|, i.e., the first segment of the exponent *-ną-* /nɔ̃/, turning it into /ɲ/ – {A.I̲.ʔ.L}. This behaviour is unexpected and calls for an explanation.

Below I will argue that in Polish the high ranking of the constraint *SPR(R) is balanced by the requirement for element |I| to be realized and by language-specific phonotactic restrictions.

Let us assume that the anchoring of |I| onto velars derives palato-velars, while its anchoring onto labials and dentals derives, respectively, palato-labials and prepalatals. As noted in Gussmann (2007), the distribution of palato-velars and palato-labials in Polish is restricted to positions before vowels. At the same time prepalatals do not surface before /n/. Whether it is possible to formulate a single phonotactic restriction that underlies these distributional fact is beyond the scope of this study. Here

I will simply take for granted the set of restrictions enumerated in (49). They will be collectively referred to as |I̲|LIC, i.e., the restrictions on the licensing of element |I̲| in Polish consonants.

(49) |I̲|LIC restrictions

Palato-velars	Labio-palatals	Prepalatals	
*/cC/	*/pʲC/	*/tɕ(e)n/²¹	*/tɕ(e)ł/
/ɟC/	*/bʲC/	*/dʑ(e)n/	*/dʑ(e)ł/
/ç C/	*/fʲC/	*/ɕn/	*/ɕ(o)ł/
/c#/	*/vʲC/	*/ʑn/	*/ʑ(o)ł/
/ɟ#/	*/pʲ#/	*/ɲ(e)n/	*/ɲ(e)ł/
/ç#/	*/bʲ#/	*/tɕ(e)ɲ/	
	*/fʲ#/	*/dʑ(e)ɲ/	
	*/vʲ#/	*/ɲ(e)ɲ/	

(49) states simply that palato-velars and palato-labials are infelicitous before consonants (C) and at the end of words (#). Prepalatals are unlicensed before coronal nasals and /ł/.

The ranking of |I̲|LIC and MAX |I| above *SPR(R) results in the derivation for the verb *prze-mok-ni-e* 's/he/it will become drenched' summarized in (50).

(50) *prze-mok-|I̲|-nǫ-e* → *prze-mo*/kɲɛ/ 's/he/it will become drenched'

× × × × | | | k |I̲| n ɔ̃ ɛ	MAX |I|	|I̲|LIC	*SPR(R)
a. kn	*!		
b. cn		*!	
c. ☞ kɲ			*

Candidate (a) does not integrate the floating element |I̲| which results in the violation of constraint MAX |I̲|. In turn, the anchoring of |I̲| onto the velar stop provokes the violation of |I̲|LIC. The optimal candidate integrates |I̲| into the structure of /n/, thus violating *SPR(R).

The mutation of the vowel /ɔ̃/ into /ɛ̃/ in the participal forms is provoked by the floating element |I| which constitutes part of the participal

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²¹ (49) reflects the fact that restrictions on prepalatal non-continuants are active also when the prepalatal and the following segment are separated by a floating "jer" vowel at the level of melodic representation. On the other hand, the prepalatal fricatives /ɕ/ and /ʑ/ may appear before /n/ when there is a 'jer' vowel that separates the two sounds at the subskeletal level, c.f. *gło*/ɕ/*-(e)n-y* 'loud.NOM.SG.MASC.', *gro*/ʑ/*-(e)n-y* 'dangerous.NOM.SG.'.

exponent (48d above). On concatenation the high ranking of MAX |I| and
*SPR(R) forces the floating feature to anchor on the /ɔ̃/ vowel. It is quite
natural to analyze /ɔ̃/ as containing element |U| correlated with round-
ness or a relatively low 2nd formant. Crucially, Polish vocalic system does
not accept the combination of elements |U| and |I|, which normally ren-
ders front rounded objects. It is, therefore, justified to postulate that the
constraint *V;{U.I} ('Don't be a front founded vowel') is inviolable in Pol-
ish. The reaction to the anchoring of |I| onto the vowel is the delinking
of element |U|, which derives a relatively open, front nasal vowel /ɛ̃/. The
delinking of element |U| violates a low-ranked constraint MAX |U| which
promotes the presence of this element in the output.

The tableaux presented below illustrates the relevant details of the
evaluation.

(51) *prze-mok-*|I̲|-*nǫ-*|I̲|t-*y* → *prze-mok-*/ɲɛ̃t/-*y* 'drenched.NOM.SG.MASC.'

× × × | | n ɔ̃ |I| t	*V;{U,I}	MAX |I|	* SPR(R)	MAX |U|
a. ɲœ̃t	*!			
b. ɲɔ̃t		*!		
c. ɲɔ̃tɕ			*!	
d. ☞ɲɛ̃t				*

Vocabulary item (48d) realizes the Prt-head in the relevant participles as
/|I|t/ only in the context of vowel /ɔ̃/. In those participles of unaccusatives
in which exponent -*nǫ*- is not present, the Prt-head is realized as /ł/
by exponent (34d). As I have mentioned above, the presence or absence
of exponent -*nǫ*- /nɔ̃/ in different forms of the verbs is the parameter
along which the four subclasses of [−α, −β]-unaccusatives differ. Thus, the
subclasses of *nǫ/Ø*-verbs may be arranged in a hierarchy of the presence of
the thematic marker -*nǫ*- /nɔ̃/. Such an arrangement is presented in (52).

(52) Infinitive   Forms in -*nǫ*-

		Non-past paradigm	Imperative	Infinitive	Adjectival passive	Verbal *ł*-participle
a.	*kop-nǫ-ć*	-*nǫ*-	-*nǫ*-	-*nǫ*-	-*nǫ*-	-*nǫ*-
b.	*prze-mok-nǫ-ć*	-*nǫ*-	-*nǫ*-	-*nǫ*-	-*nǫ*-	—
c.	*u-cich-nǫ-ć*	-*nǫ*-	-*nǫ*-	-*nǫ*-	—	—
d.	*u-paś-Ø-ć*	-*nǫ*-	-*nǫ*-	—	—	—
e.	*zgni(j)-Ø-ć*	—	—	—	—	—

(52a) presents the semelfactive verb *kop-ną-ć* 'kick once', which displays *-ną- /nɔ̃/* in all the relevant environments. (52b) illustrates that verbs such as *prze-mok-ną-ć* 'become drenched' show exponent *-ną- /nɔ̃/* in the infinitive, imperative (cf. *prze-mok-n-ij* 'over-wet-TH-IMP/become saturated, imp.') the non-past tense paradigm and the passive. The same is not true for the subclass *u-cich-ną-ć* 'become silent' (52c). This subclass does not display *-ną- /nɔ̃/* in the adjectival passive participle, which is therefore marked as *-ł- /ł/*.

The exponent *-ną-* is still less preponderant in the subclass *u-paś-ć* 'to fall' (52d), which displays it only in the non-past paradigm and the Imperative (*u-pad-n-ij*[22] 'at-fall-TH-IMP/fall, imp.').

Finally, the verbs *gni(j)ć* 'rot' and *ty(j)ć* 'to gain weight' and their numerous prefixal derivates do not show *-ną-* in any form of their paradigms (52e).

Within the confines of the current formalism, whether exponent *-ną-/nɔ̃/* is found in a given form is dependent on whether the stem realizes the Asp-head. In other words, the subclasses in (52) differ in the number of environments in which the Asp-head is realized by the stem.

In the subclass *prze-mok-ną-ć* (52a) the stem realizes the Asp-head in the environment of the active *ł*-participle (see 48a). The entries for the other three subclasses are presented in (53).

(53) a. $\{\sqrt{\text{CICH}},((V_{[-\alpha]})_i, \text{Asp})_{ii}\} \leftrightarrow /\text{tɕix}/ \Big/ \text{—} \begin{cases} [+\text{sp}, -\text{pl}]_i \\ [-\text{part}, +\text{pl}]_i \\ \text{Prt}_{[+\text{act}]ii}{}^{23} \\ \text{Prt}_{[-\text{act}]ii} \end{cases}$

b. $\{\sqrt{\text{PAD}},((V_{[-\alpha]})_i, \text{Asp})_{ii}\} \leftrightarrow /\text{pad}/ \Big/ \text{—} \begin{cases} [+\text{sp}, -\text{pl}]_i \\ [-\text{part}, +\text{pl}]_i \\ \text{Prt}_{[+\text{act}]ii} \\ \text{Prt}_{[-\text{act}]ii} \\ \text{Inf}_{ii} \end{cases}$

c. $\{\sqrt{\text{GNIJ}},V_{[-\alpha]}, \text{Asp}\} \leftrightarrow /\text{gnij}/$

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[22] The stem *+pad+* terminates lexically in a dental plosive /d/, which undergoes phonological palatalization and spirantization before the infinitival affix *-ć /tɕ/*. For details of this process, see Szpyra-Kozłowska (2012).

[23] Note that the two participial environments cannot be simply conflated into 'Prt' as not all participles of verbs such as *cich-ną-ć* 'become quiet' rewrite the Asp-head by means of stem exponents. Polish has progressive adjectival participles in *-ąc-*, *e.g.*, *cich-n-ąc-y* 'that is becoming silent'. They are different from active *ł*-participles in

The subclass *u-cich-nǫ-ć* (53a) realizes the sequence up to the Asp-head by means of the stem in the environment of active and passive Prt-heads. In subclass *u-paś-ć* (53b) the Asp-head is realized by the stem exponent in the infinitive, the active *ł*-participle and in adjectival passive. Finally, entry (53c) realizes the Asp-head in subclass *zgni(j)-ć* without any contextual restrictions.

At this point it is worth noting that the complexity of the vocabulary items that mention stems as their phonological exponents postulated in (53), as well as the entry for subclass *prze-mok-nǫ-ć* 'become drenched' repeated in (54) for convenience, adequately reflect the markedness of the four subclasses of *nǫ/Ø*-verbs. To be precise, it seems that the more heads/features are present in the environment of a given vocabulary item, the more marked, e.g., less numerous, a given sub-class is.

$$(54) \quad \{\sqrt{\text{MOK}},((V_{[-\alpha]})_i, \text{Asp})_{ii}\} \leftrightarrow /\text{mɔk}/ \; \Big/ \; \text{—} \; \begin{cases} [+\text{sp}, -\text{pl}]_i \\ [-\text{part}, +\text{pl}]_i \\ \text{Prt}_{[+\text{act}]ii} \end{cases}$$

Vocabulary items in (53b) which mention the greatest number of environments are attested only in a few stems in Polish. Entries analogous to (53b) must be postulated for the stems *biec* 'to run', *lec* 'to fall' and *kraść* 'to steal', and *ciec* 'to drip'. These verbs and their various prefixed cousins show affix *-nǫ-* /nɔ̃/ only in the non-past paradigm and the imperative.

The entries analogous to the one in (53c), i.e., with no environment at all, are the least marked and expected to be found in numerous verbs. Although there are only two unaccusative *nǫ/Ø*-verbs which do not show *-nǫ-*, the number of transitive verbs which realize the relevant functional sequence by means of the stem exponent is quite substantive. These are verbs such as *my-ć* 'clean', *tru-ć* 'poison', *pi-ć* 'drink', *kry-ć* 'thide', *grza-ć* 'warm up', *la-ć* 'pour' as well as many others.

Between the most marked *upaś-ć*-type (53b) and the least marked *zgni(j)-ć*-type (53c) there are two subclasses of intermediate markedness. According the markedness calculus assumed above, subclass *u-cich-nǫ-ć* (53a) should be more marked than the subclass *prze-mok-nǫ-ć* (54). Note that the items of the type (53a) must mention one more environment than the entries of the subclass *prze-mok-nǫ-ć* (54). This environment is the Prt_{[-act]}-head. If this head were not mentioned in the entries of verbs such

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expressing processes/actions in progress, being necessarily atelic and categorized as adjectives. If vocabulary items such as (53a-b) mentioned only the Prt-head they would apply also to such progressive participles in *-ǫc-* rewriting the Asp-head.

as *u-cich-nǫ-ć* 'become silent' or *o-głuch-nǫ-ć* 'TEL-deaf-TH-INF/become deaf', the passives based on such verbs would realize the Asp-heads by means of exponent *-nǫ-* /nɔ̃/. Consequently, the Prt-head in such constructions would be realized as *-/I/t-* /|I|t/ giving rise to unattested forms such as **u-cich-nię-t-y* intended: 'that became silent' or **o-głuch-nię-t-y* intended: 'that became deaf'.

Some evidence for the greater markedness of the *u-cich-nǫ-ć*-type comes from the direction of change that Polish is currently undergoing. Cetnarowska (2000, 55; 2012) noted that affix *-ł-* /ł/ found in many resultative adjectives (adjectival passives of unaccusatives) tends to be replaced by affix *-t-* /t/. Currently one observes doublets of passives based on unaccusative verbs, e.g., *za-chryp-nię-t-y – za-chryp-ł-y* 'that became hoarse'. The following section is devoted to the discussion of such doublets.

4.2.3. Doublets of passives in *-ł-* and *-t-*

Cetnarowska (2000, 55) reports that *ł*-passives seem to give way to *t*-passives. Table (55) presents pairs of *ł*-passives and *t*-passives found in Cetnarowska (2000) together with the number of tokens of the relevant participles attested in the National Corpus of Polish.[24]

The data presented in (55) definitely confirm the preference towards the use of exponent *-t-* /t/ in all the passives whose verbal bases utilize exponent *-nǫ-* /nɔ̃/. Apart from the cases of the passives based on the verbs *u-mrz-e-ć* 'TEL-die-TH-INF/die'[25] (55i) and *z-gni(j)-ć* 'TEL-rot-INF/ rot' (55k), whose *t*-passives are absent from standard Polish, in all other cases the tokens of *t*-passives are much more numerous than the tokens of *ł*-passives. At the same time it must be emphasized that in most cases presented above both members of the pair are acceptable to most speakers, although it is the variant in *-t-* /t/ that seems more often used.

Cetnarowska (2012) provides an account of this tendency by claiming that the growing preference towards the use of *t*-passives is the consequence of paradigm levelling: the relevant lexical items (e.g., *za-chryp-nię-t-y* 'hoarse' etc.) show exponents *-nǫ-* /nɔ̃/ in the majority of the morphological forms, e.g., in the infinitive *za-chryp-nǫ-ć* 'for-hoarse-TH-INF/ become hoarse', the imperative *za-chryp-n-ij* 'for-hoarse-TH-IMP/become hoarse, imp', non-past paradigm, *za-chryp-n-ę* 'for-hoarse-TH-PRS.1SG/

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[24] In (55), the abbreviation "P-NSM" stands for PASS-NOM.SG.MASC.

[25] *U-mrz-e-ć* 'die' is an exceptional verb whose infinitive looks like an infinitive of *e/ej*-verbs but which conjugates like *nǫ/∅*-verb in the non-past and the active ł-participle paradigm.

(55)   Participle in -*t*-   Tokens   Participle in -*ł*-   Tokens   Glosses
                                in NCP   in NCP

   a. *za-marz-nię-t-y*   78   *za-marz-ł-y*   3   'frozen'
       for-freeze-TH-P-NSM   for-freeze-P-NSM

   b. *prze-siak-nię-t-y*   130   *prze-siąk-ł-y*   1   'saturated'
       over-saturate-TH-P-NSM   over-saturate-P-NSM

   c. *na-mok-nię-t-y*   15   *na-mok-ł-y*   4   'drenched'
       on-wet-TH-P-NSM   on-wet-P-NSM

   d. *s-pierzch-nię-t-y*   4   *s-pierzch-ł-y*   1   'chapped
       with-chap-TH-P-NSM   with-chap-P-NSM   (of skin)'

   e. *wy-sch-nię-t-y*   47   *wy-sch-ł-y*   10   'dried'
       out-dry-TH-P-NSM   out-dry-P-NSM

   f. *s-puch-nię-t-y*   140   *s-puch-ł-y*   0   'swollen'
       with-swollen-TH-P-NSM   with-swollen-P-NSM

   g. *z-zięb-nię-t-y*   209   *z-zięb-ł-y*   5   'that
       with-cold-TH-P-NSM   with-cold-P-NSM   feels cold'

   h. *za-chryp-nię-t-y*   238   *za-chryp-ł-y*   44   'hoarse'
       for-hoarse-TH-P-NSM   for-hoarse-P-NSM

   i. *u-mar-t-y*   1   *u-mar-ł-y*   163   'dead'
       TEL-die-P-NSM   TEL-dead-P-NSM

   j. *s-kwaś-nię-t-y*   0   *s-kwaś-ni-a-ł-y*   0   'sour'
       with-sour-TH-P-NSM   with-sour-ADJ-TH-P-NSM

   k. *z-gni-t-y*   5   *z-gni-ł-y*   462   'rotten'
       TEL-rot-P-NSM   TEL-rot-P-NSM

I will become hoarse' etc. Hence, they are expected to extend the use of the said exponent also to the resultative adjective (i.e., the passive). This interpretation is strengthened by the fact that Polish already contains a large class of items with stable presence of -*ną*- /nɔ̃/, i.e., semelfactives such as *kop-ną-ć* 'kick-TH-INF/kick once', which show the relevant exponent in all related forms including the passives and the active verbal *ł*-participles, cf. *kop-ną-ł-em* 'kick-TH-PTCP-1SG.MASC/I kicked, masc.' etc.

Although the technical implementation of the analysis presented in Cetnarowska (2012) is not compatible with the general architecture of the grammar assumed here, the interpretation of the preference towards the use of *t*-passives that I want to suggest is actually quite similar in spirit.

The general approach assumed in this study denies the existence of the mechanism such as paradigm levelling as the driving force behind the observed preferences in the use of *ł*-passives and *t*-passives. This stems from a simple fact that the approach followed here simply denies the existence of paradigms as grammatically relevant devices. Paradigms are not

stored because words are not stored. The long term memory stores vocabulary items, i.e., statements that encode mappings between the syntactic structure and phonological material. All the details and intricacies of phonological realization are encoded in vocabulary items. The same must be true about the variation observed in the use of *ł*-passives and *t*-passives and the preference towards the use of the latter.

The most straightforward way of accounting for the possibility of a single verb to give rise to two types of passives is to assume that a single speaker stores two vocabulary items: one that allows for the realization of the *ł*-passive and one responsible for the realization of the *t*-passive of a given verb. Such vocabulary items for the pair *za-chryp-nię-t-y – za-chryp-ł-y*[26] 'hoarse' are presented in (56a) and (56b).

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[26] One of the reviewers disagrees with the claim that the pair *za-chryp-nię-t-y – za-chryp-ł-y* 'hoarse' is a genuine case of the variation in exponence and claims that the two show distributional and semantic differences. According to the reviewer, the form *za-chryp-ł-y* may only be found in the attributive position and 'implies a larger degree of hoarseness' than *za-chryp-nię-t-y*. I am afraid that none of these claims are true. The form *za-chryp-ł-y* is attested in both attributive and predicative positions as indicated by multiple examples found on the web; see, e.g., (i) taken from Bogdan Kolomijczuk's short story *Pojedynek* published in an online literary journal *Akcent* 2017(3):

(i) Jeg-o   głos   by-ł   nieco   za-chryp-ł-y

　his-GEN.SG voice.NOM.SG be-PST.3SG.MASC slightly for-hoarse-PASS-NOM.SG.MASC

　i   wy-czuw-a-ł-o   się w nim   u-kry-t-ą

　and out-feel-TH-PTCP-NEU.3SG REFL in it.LOC.SG at-hide-PASS-ACC.SG.FEM

　ironi-ę.

　irony-ACC.SG

　'His voice was slightly hoarse and you could trace irony hidden in it.'

As to *za-chryp-ł-y* implying 'larger degree of hoarseness' than *za-chryp-nię-t-y*, no speaker that I consulted confirmed this intuition. If the from *za-chryp-ł-y* indeed pointed to a relatively greater degree of hoarseness, one would expect it to collocate more readily with adverbials denoting a large or full extent of the change of state from not being hoarse to being hoarse such as *mocno* 'strongly', *całkiem* 'fully', *całkowicie* 'entirely'. On the other hand *za-chryp-nię-t-y* should more often collocate with adverbial denoting a limited degree of the change of state such as *trochę* 'a little', *odrobinę* 'a bit', *nieco* 'slightly', the last of which is attested in (i).

In the National Corpus of Polish the nominative masculine singular of the passive *za-chryp-ł-y* appears 2 times with *trochę* 'a little' and is not found with the other 5 adverbials. *Za-chryp-nię-t-y*, on the other hand, is found with *trochę* 'a little' 3 times, while with *nieco* 'slightly' it appears 7 times. It is also found in the collocations with *mocno* 'strongly' (6), *całkiem* 'fully' (1) and *całkowicie* 'entirely' (1). These small numbers do not allow for the formulation of any conclusions as to the collocational

(56) a. $\{\sqrt{\text{CHRYP}},((V_{[-\alpha]})_i, \text{Asp})_{ii}\} \leftrightarrow /\text{xrip}/ \; \Big/ \underline{\quad} \begin{cases} [+\text{sp}, -\text{pl}]_i \\ [-\text{part}, +\text{pl}]_i \\ \text{Prt}_{[+\text{act}]ii} \end{cases}$

     b. $\{\sqrt{\text{CHRYP}},((V_{[-\alpha]})_i, \text{Asp})_{ii}\} \leftrightarrow /\text{xrip}/ \; \Big/ \underline{\quad} \begin{cases} [+\text{sp}, -\text{pl}]_i \\ [-\text{part}, +\text{pl}]_i \\ \text{Prt}_{[+\text{act}]ii} \\ \text{Prt}_{[-\text{act}]ii} \end{cases}$

     c. $V_{[-\alpha, -\beta]} \leftrightarrow |\underline{\text{I}}| \; \Big/ \underline{\quad} \text{Asp}_{[\Delta/\text{SEM}]}$

     d. $\{(V_{[-\alpha, -\beta]})_i, \text{Asp}_{[\Delta/\text{SEM}, -\alpha, -\beta]}\} \leftrightarrow /\text{nɔ̃}/ \; \Big/ \underline{\quad} \text{Inf}_i$

     e. $\{(\text{Asp2}), (\text{Voice}), \text{Prt}_{[-\text{act}]}\} \leftrightarrow |\text{I}|\text{t} \; \Big/ \; \tilde{\text{ɔ}} \underline{\quad}$

     f. $\text{Prt} \leftrightarrow \text{ł}$

The maximal entry mentioned in (56a) realizes the root, the V-head and the Asp-head by means of the stem exponent /xrip/ only in the environment of the active ł-participle. In the passive the V-head will be re-written as the palatalizer, the Asp-head will be realized by means of exponent *-nǫ-* /nɔ̃/ (56d), while the Prt-head will be realized as the mutating exponent *-/I/t-* /|I|t/ (56e). The passive will surface as *za-chtyp-nię-t-y* /zaxrɨpɲɛ̃tɨ/ 'hoarse'. (57) shows the representation of the relevant passive. The exponents presented in (57) are inserted if entry (56a) is selected to realize the root.

(57)
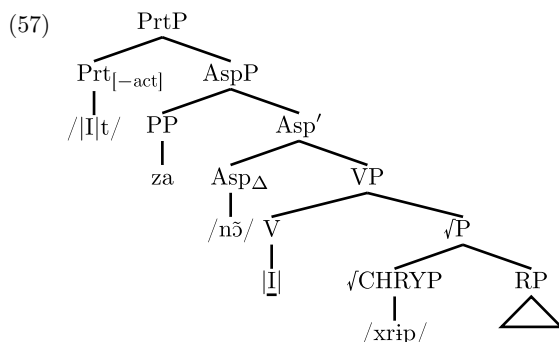
If entry (56b) is selected for the realization of the lower structure, the passive based on the verb *za-chryp-nǫ-ć* 'become hoarse', will realize the Asp-head by means of the stem exponent. This is the case as the extended

potential of *za-chryp-nię-t-y* and *za-chryp-ł-y* but at the same time do not confirm the claim the *za-chryp-ł-y* denotes a greater degree of hoarseness.

entry (56b) mentions both types of the Prt-head, $Prt_{[+act]}$ and $Prt_{[-act]}$, as the context in which the Asp-head is realized by the stem. The insertion of entry (56b) will bleed the insertion of entries (56c) and (56d). The Participal head will necessarily be realized as *-ł-* /ł/ (56f) generating the *ł*-passive *za-chyp-ł-y* /zaxrɨpłɨ/ 'hoarse' (see (58)).

(58)
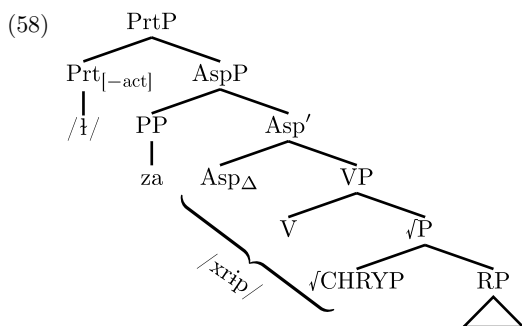
The current approach accounts for the existence of variability in the realization of the passives of verbs such as *za-chryp-ną-ć* 'become hoarse' by postulating two vocabulary items that realize different spans of the same participial structure. As has been argued by Cetnarowska (2000; 2012) and confirmed by the corpus data presented above, passives marked with *-t-* are more frequent and likely to replace *ł*-passives based on the same verbs. How can the approach pursued here account for the preference towards the use of one of the realizations?

My claim is that what decides about the preference towards the use of *t*-passives are simple economy considerations. The presence of two vocabulary items that realize the same root in the same environment, like (57a,b), is dispreferred. One of such items is clearly redundant. It is only natural that the speakers will tend to avoid employing the more complex vocabulary item and stick to the simpler one, perhaps up to the point where the former is completely forgotten. In this case the simpler vocabulary item is the one which mentions fewer conditioning environments, i.e., entry (56a). The consequence of such a choice is that the passive structure wil be realizes as in (57): with the use of exponent *-ną-* /nɔ̃/ and *-/I/t-* /|I|t/. Under such a view, the paradigm levelling effect is a corollary of the preference towards the use of the less burdensome lexical entry and not the driving force behind the tendency to replace the *ł*-passives with *t*-passives.

What the paradigm levelling approach and the vocabulary-item based approach towards the preference of *t*-passives share is that they take broadly understood cognitive economy to stand behind the observed ten-

dencies. Unfortunately, the general assumption behind the two approaches are so different that it is not easy to establish what data could clearly decide which of the two approaches is more adequate.

4.3. Passives based of transitive verbs

According to the analysis presented in the previous section, passive participles of unaccusative verbs are marked with exponents *-ł-* /ł/ or *-/I/t-* /|I|t/. The former gives rise to passive *ł*-participles of *ej*-verbs and of those *ną/Ø*-verbs whose participles realize the Asp-head by means of the stem exponent, e.g., *u-paś-ć* 'to fall' or *o-głuch-ną-ć* 'to become deaf'. The latter serves the formation of *t*-participles with an additional mutation of the vowel /ɔ̃/ in those verbs which realize the Asp-head as *-ną-* /nɔ̃/. These two exponents exhaust the list of affixes which realize the $\text{Prt}_{[-\text{act}]}$-head in passives based on intransitive verbs.

The adjectival and verbal passives based on transitive verbs may be marked with exponent *-n-* /n/ (59a), the non-mutating exponent *-t-* /t/ (59b) and the mutating exponent *-/I/t-* /|I|t/ (59c) in the case of semelfactive verbs in *-ną-*.

(59) a. {Voice, $\text{Prt}_{[-\text{act}]}$} ↔ /n/ (e.g., *z-łam-a-n-y* 'broken', *bud-ow-a(j)-n-y* 'built')

    b. {$\text{Voice}_{[-\alpha, -\beta]}$, $\text{Prt}_{[-\text{act}]}$} ↔ /t/ / C ___ (*z-war-t-y* 'composed', *s-tar-t*-y 'rubbed off')

    c. {(Voice), $\text{Prt}_{[-\text{act}]}$} ↔ /|I|t/ / ɔ̃___ (*wal-nię-t-y* 'struck', *kop-nię-t-y* 'kicked')

Note that vocabulary items (59a) and (59b), which always rewrite the Voice head, cannot realize participles of unaccusative verbs. By virtue of mentioning feature [−act], they are also overspecified for the realization of active verbal participles. For the same reason, all vocabulary items in (59) will always win out against the exponent *-ł-* /ł/ (56f) in passive participles of transitive verbs. In sum, vocabulary items (59a) and (59b) are designed to be attested only in the passive participles of transitive verbs. According to the items found in (59a) and (59b), the participles of transitive verbs are regularly realized by means of *-n-* /n/, while *-t-* /t/ is inserted if the functional sequence is marked with the features $[-\alpha, -\beta]$ that percolates from the V-head to Voice, and if the stem of the verb terminates in a consonant.

One more morphological type of passive participles has been mentioned in the introduction and section 3.2. and exemplified by the passive par-

ticiple *o-cal-on-a* 'about-whole-PASS-NOM.SG.FEM/saved, fem.'. The structure realized as /ɔn/ is presented in (60).

(60) {Asp$_{[-\alpha]}$, (Asp2), Voice, Prt$_{[-\text{act}]}$} ↔ /ɔn/

Entry (60) makes sure that all *i*-verbs and those transitive athematic verbs which do not rewrite the Asp-head by means of the stem (in which case (60) is bled) realize the Asp-heads, the Voice head and the Prt-head as /ɔn/.

Recall that such participles show an alternation between vowels /ɔ/ and /ɛ/, the latter of which is attested in virile or masculine-personal forms. Rubach (1984, 37) analyses this type of passives as containing exponent *-en-* /ɛn/, which surfaces with the vowel /ɔ/ if it is followed by a non-palatal consonant. If the following consonant is palatalized, /ɛ/ is retained. Some examples of the alternation are adduced in (61). (61a) illustrates the examples of *i*-verbs while examples of athematic verbs are found in (61b).

(61)   Infinitive   Participle (NOM,SG)   Participle (NOM,PL,VIR)

a. *gub-i-ć* /gubʲitɕ/   *gubi-on-y* /gubʲɔnɨ/   *gubi-en-i* /gubʲɛɲi/
    lose-TH-INF   lose-PASS-NOM.SG.MASC   lose-PASS-NOM.PL.VIR
    'lose'   'lost'   'lost'

    nudz-i-ć /nudʑitɕ/   *nudz-on-y* /nudzɔnɨ/   *nudz-en-i* /nudzɛɲi/
    bore-TH-INF   bore-PASS-NOM.SG.MASC   bore-PASS-NOM.PL.VIR
    'bore'   'bored'   'bored'

    gon-i-ć /gɔɲitɕ/   *goni-on-y* /gɔɲɔnɨ/   *goni-en-i* /gɔɲɛɲi/
    chase-TH-INF   chase-PASS-NOM.SG.MASC   chase-PASS-NOM.PL.VIR
    'chase'   'chased'   'chased'

b. *paś-ć* /paɕtɕ/   *pasi-on-y* /paɕɔnɨ/   *pasi-en-i* /paɕɛɲi/
    graze-INF   graze-PASS-NOM.SG.MASC   graze-PASS-NOM.PL.VIR
    'graze'   'grazed'   'grazed'

    wieź-ć /vʲɛɕtɕ/   *wiezi-on-y* /vʲɛzɔnɨ/   *wiezi-en-i* /vʲɛzɛɲi/
    carry-INF   carry-PASS-NOM.SG.MASC   carry-PASS-NOM.PL.VIR
    'carry'   'carried'   'transported'

    strzec /stʃɛts/   *strzeż-on-y* /stʃɛʒɔnɨ/   *strzeż-en-i* /stʃɛʒɛɲi/
    guard.INF   guard-PASS-NOM.SG.MASC   guard-PASS-NOM.PL.VIR
    'guard'   'guarded'   'guarded'

The rule-based analysis of the /ɛ/–/ɔ/ alternation seems rather implausible for very similar reasons to the ones that put Backing and Lowering into question. As demonstrated by data in (38), Polish possesses instances of /ɛ/ which simply does not undergo backing before non-palatal conso-

nants. In order to provoke backing and rounding Gussmann (1980) and Rubach (1984) postulate that the relevant /ɛ/'s are marked as [−tense]. The feature serves as a diacritic as there is no relation between laxness and susceptibility to undergo backing and rounding.

At the same time the relation between the palatalization of /n/ attested in the virile gender and its connection to the fronting of /ɔ/ seem more than an accident. Note that unlike the /ɛ/–/a/ attested in *e/ej*-verbs alternation and discussed in section 4.2.1, the /ɔ/–/ɛ/ alternation applies consistently in the presence of feature [+masculine-personal]. Still, the feature cannot be directly referred to for as the environment of the alternation for exactly the same reason for which it cannot be referred to in *ł*-passives of *ej*-verbs: *on*-passives are categorised as adjectives by the merger of A-head, which triggers the spell-out of its complement before feature [+masculine-personal] enters the derivation.

In order to account for the /ɔ/–/ɛ/ alternation and its relation to the palatalization of /n/ I will assume that the vowel and the consonant found in exponent -*on*- /ɔn/ share a subsegmental node which hosts element |U| or |I|.[27] The nasal should, therefore, be regarded as labio-coronal, which is quite the case. In fact the lip rounding in exponent -*on*- /ɔn/ is carried over from the vowel to the nasal. The representation of the resonance of the affix -*on*- /ɔn/ is found in (62).

(62)
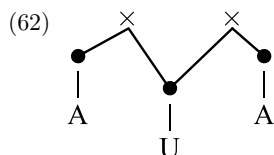
Let me also postulate that the exponent of agreement features in the virile gender carries a palatalizing autosegment: /|I̲|i/. The floating element anchors onto the closest target: the node shared by /ɔ/ and /n/ which carries element |U|. The anchoring of |I̲| will lead to delinking of |U| due to the ban on front rounded vowels in Polish. The additional complication is that the newly integrated element |I̲| must play the role of the head in the nasal (/ɲ/ = {A.I̲.ʔ.L}) but in the vowel it must have the same status as |A| (/ɛ/ = {I.A̲}). Since headedness is a notion which is substantiated in relation to other elements and since it is defined within the limits of a sin-

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[27] The exact identity of such a node is not entirely relevant here. It could be conceived of as the Tongue Body Constriction Feature (see Ewen & van der Hulst 1988) or a V-place node responsible for secondary place of articulation in Clements & Hume's (1995) model.

gle segment, nothing precludes one and the same element to play the role of a head in one segment but the role of an operator in another segment. The constraint formulated in (63a) bans asymmetrical relations between elements in Polish vowels, thus making sure that the freshly integrated |I| is an operator in the vowel. Constraint (63b) penalizes segments which host elements that changed their headedness status in the course of the input-output mapping.

(63) a. *Head;V: no element in a vowel has the status of a head

    b. Ident;Head: for every segment S hosting element E in the output, make sure that E has the same headedness status as it has in the input

The tableaux in (64) summarizes the analysis of the /ɔ/–/ɛ/ alternation in exponent -on- /ɔn/.

(64)

/ɔn/ +/|I̲|i/	Max |I|	*V:{U,I}	*Head;V	Ident;Head	Max |U|
a. ɔn	*!				
b. œɲi		*!			
c. V | {A.I̲}			*!		*
d. V C \/ {A.I}				**!	*
e. ☞ /ɛɲ/				*	*

The faithful candidate (64a) violates the constraint that enforces the linking of element |I|. Candidate (64b) possesses a combination of elements |I| and |U|, which is banned in Polish vowels. Candidate (c) integrates |I̲| without any change and thus violates constraint (63a). Candidate (64d) changes the status of |I| in respect to the elements found in /ɛ/ and the elements found in the consonant. Since the latter change of the headedness status is not enforced by markedness considerations, the faithfulness constraint Ident;Head is fatally violated. The winning candidate (64e) integrates |I| as the head in the consonant but as an operator in the vowel and surfaces as /ɛɲ/.

5. Conclusion

Summarizing the exponence of Polish non-active participles, this paper proposes the existence of five relevant affixes presented in (65) below. The mutating -/I/t- /|I|t/, non-mutating -t- /t/, -on- /ɔn/, -n- /n/ and -ł- /ł/.

(65)	Affix	Verb subclass	Context	Examples (all NOM.SG.MASC)
a.	-/I/t-	transitive and unaccusative *ną/Ø*-verbs	/ɔ/ __	*prze-mok-nię-t-y* 'drenched' *kop-nię-t-y* 'kicked'
b.	-t-	transitive *Ø*-verbs	C __	*ukry-t-y* 'hidden' *dar-t-y* 'torn'
c.	-on-	transitive *i*-verbs, transitive *Ø*-verbs	—	*rzuc-on-y* 'thrown' *gryzi-on-y* 'bitten'
d.	-n-	transitive verbs in *(ow)+aj/e/a/i/Ø*	—	*got-ow-a(j)-n-y* 'boiled' *widzi-a(j)-n-y* 'seen' *na-kaz-a-n-y* 'ordered' *grza-n-y* 'warmed up'
e.	-ł-	*ną/Ø*-verbs, *ej*-verbs (unaccusatives)	—	*u-cich-ł-y* 'that became silent' *z-grubi-a-ł-y* 'that became thick'

The mutating *-/I/t-* is inserted if the Asp-head of a verb is realized as *-ną-*. The non-mutating *-t-* is found in most athematic verbs and is sensitive to the stem terminating in a consonant. Exponent *-on-* is found with [−α]-participles whose Asp-layer is not realized by means of the stem. *-n-* is the default realization in the participles of transitive verbs, while the affix *-ł-* is the unmarked realization of the participles of unaccusatives.

The classification of the Passive Participle Markers presented in (65) differs from the traditional description found in Laskowski (1998) in that the latter does not recognize *-ł-* /ł/ as the PPM but rather treats *ł*-passives as de-verbal adjectives. In fact in Polish descriptive tradition monoargumental verbs are assumed not to give rise to passives: an assumption which sets Polish apart from languages such as German (Gese et al. 2011) and English (Bruening 2014) assumed to possess adjectival passives of unaccusatives. The interpretation pursued here is that forms such as *u-cich-ł-y* 'that became silent' or *z-grubi-a-ł-y* 'that became thick' are passive participles of unaccusatives. This allows to view Polish as less exotic than the traditional descriptions would like it to be and creates the chance for potential comparative analyses of the behaviour of passives of unaccusatives in Polish and other languages. Apart from this difference, the PPM's recognized by Laskowski (1998, 268–269) and the current study are the same in number and type, perhaps with the exception of of the mutating *-/I/t-* /|I|t/, which is interpreted as *-ęt-* /ɛ̃t/ in Laskowski's description.

Rubach's (1984, 37) analysis is an example of an early generative approach which reduced the number of PPM's to three: *-n-* /n/, *-t-* /t/ and *-en-* /ɛn/. This is done at the cost of treating the alternation between /ɔ/ and /ɛ̃/ attested in exponent *-ną-* /nɔ̃/ (Rubach's /nɨn/) as applying to a vowel marked for a diacritic feature [-tense]. The reduction of the

number of PPM's could be regarded as a desirable step. However, if it is done at the cost of introducing diacritic features into the phonological grammar of Polish, the gain seems immediately less attractive.

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