

REFLECTIONS OF VERBAL SYNTAX IN NOMINALIZATION AND ADJECTIVIZATION

ADAM BIAŁY
University of Wrocław
abialy@uni.wroc.pl

ABSTRACT

In Distributed Morphology (DM), morphology is seen as a reflection of syntactic processes and requirements. Since DM is an essentially syntax-based approach to word formation processes, and derivation in particular, it assumes the retention of original structure in a given process of derivation where a new form is created. For example, the structure for the verb *integrate* has to be contained within the structure for the derived noun *integration*. The question is what constitutes the structure of *integrate*, and to what extent it is preserved in the structure of the deverbal noun. Following Borer (2003) and Harley (in press), the analysis of the relationships between such related forms reveals important rules governing phrase structure in general.

The paper focuses mainly on Polish nominalization and adjectivization data and sets it against similar investigations conducted on English (e.g., Harley in press). The aim of the analysis is to investigate whether the accounts proposed for languages such as English, in the spirit of DM, can be maintained for Polish. The results also add to the general discussion of what part of meaning, or interpretation, should be associated with the lexical root (i.e. lexicon), and what part is inherently structural or functional.

KEYWORDS: derivation; categorization; participials; scalar structure.

1. The background

Approaches to syntax, such as Distributed Morphology (DM) (Halle and Marantz 1993, 1994), reject the multi-layer view on language representation in favour of a monolithic one. As a result, the “older” generative assumption that morphology and syntax are two separate components of grammar is rejected. In DM, natural language is argued to possess a repertoire of syntactic or functional projections which are mapped onto semantics/interpretation. Languages may differ in three respects. Firstly, there is a fixed repertoire of structural/functional projections from which a subset is assigned to a particular language; secondly, the positions for these projections in the overall structure of a sentence may be different; thirdly, they may lack overt morphological items to check a

given position. DM provides a linguist with two kinds of tools that can be used to check the structural build-up of a given language: morphology and meaning. This results from the assumption that syntactic structure is interpretable (a common denominator of all constructionist approaches).¹

The aim of the paper is to investigate Polish categorization data and compare it with similar investigations conducted on English (e.g. Harley in press). The analysis focuses on derived constructs which arise as a result of verbalization, nominalization, and adjectivization. The discussion is strongly based on the account of Jabłońska (2007) and can be seen as a minor refinement of that approach in matters relevant for the subject matter of this paper. The results contribute to the general discussion of which part of meaning, or interpretation, should be associated with the lexical root (i.e. lexicon), and which part is inherently structural or functional.

2. Categorization in DM

DM makes use of two classes of terminal nodes: a-categorial roots (\sqrt{s}) and grammatical elements of various kinds (*f-morphemes*, which correspond to functional projections in many other approaches). Roots acquire a category when they merge with a given *f-morpheme* in the course of the syntactic derivation. The category creating *f-morphemes* are: v° (verbalizer), n° (nominalizer), a° (adjectivizer).

2.1. Nominalizations in DM

In DM derivation is seen as a cyclical process and it is directly correlated with morphology. Once a given structure is derived, it is retained in the course of further derivation. The relevant example is the nominalization of a verbal base where the noun retains some characteristics of the underlying verb, like Case assignment and adverbial modification, in (1c), but not in (1b, d).

- (1a) John unwillingly sold the car.
- (1b) John's unwilling sale of the car led to his nervous breakdown.
- (1c) John('s) unwillingly selling the car led to his nervous breakdown.
- (1d) John's unwilling selling of the car led to his nervous breakdown.

On the basis of such behaviour, Harley (in press) distinguishes two types of nominalizations: "ACC-ing nominalizations" (1c) and "OF-ing nominalizations" (1b, d), and lists the following properties of the two.

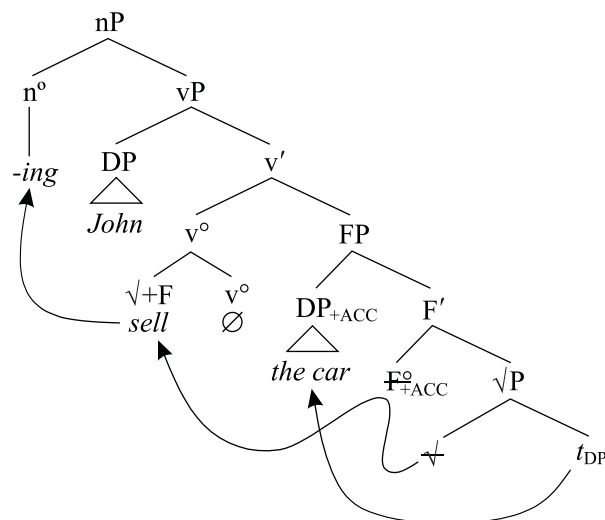
¹ This approach is succinctly described in Harley (2006): "wherever you see a morpheme, there must be a corresponding terminal node in the structural analysis of the sentence. Where you *don't* see a morpheme, there may well be a terminal node filled by a \emptyset element; this happens all the time in English."

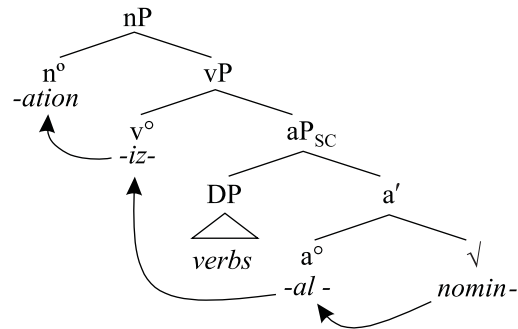
- (2) ACC-ing properties:
 Verbal characteristics:
 Accusative Case assignment, adverbial modification
 OF-ing properties:
 Nominal characteristics:
 of-Case assignment, adjectival modification

Harley, following Kratzer (1996), postulates that the difference between the two types of *-ing* nominals results from the position in which the nominalizing suffix is attached in the derivation. The low position (above a subject-introducing projection) results in the OF-ing type (4). The high position, the position at which external argument and ACC Case are assigned, results in the ACC-ing structure (3).

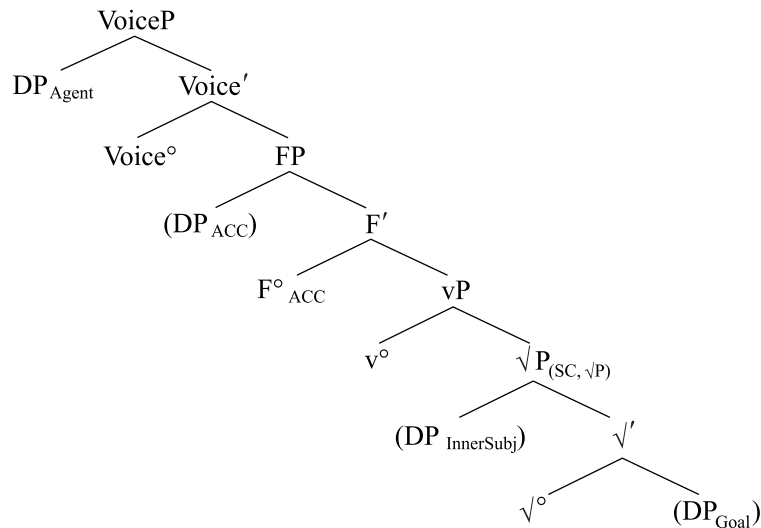
In Marantz (1997), the verbalizing v^0 head is associated with the external argument-introducing vP shell. The projection becomes verbal when the root gets affixed to v^0 (the verbalizer) via head-movement. OF-ing nominals lack the verbalizing vP above the root, so they fail to reveal verbal characteristics. (3) presents the structure for *John selling the car*, while (4) is the structure for an OF-ing nominalization, *nominalization of verbs*.

- (3) *John selling the car*



(4) *Nominalization of verbs* (Marantz 1997)

(5) Full verbal structure including agent-introducing head (Harley in press)



Harley (in press) argues, contrary to Marantz, that many deverbal nominals (OF-*ing* type) contain the verbalizing morpheme *-ize*, so they should contain the verbalizing projection (v°) in line with DM criteria. As indicated by the example in (3), the v° projection is associated with the FP, which in turn gives rise to the Accusative Case assigning ability. This ability is clearly absent in *the nominalization of verbs*, where the object argument has to be realized in a PP. The way out of this dilemma is to dissociate the verbalizing projection from the Accusative Case checking and external argument assigning projections (5), as it is done in Pykkänen (2002).

The analysis of nominals indicates that derivation proceeds in a clearly defined fashion with given parts of the projection being associated with particular interpretation. The lower part of the projection is associated with nominal characteristics, whereas the upper part is “verbal”. Such analysis meets the assumption adopted in this paper that categorization is an interpretative notion and is associated with sequential derivation.

2.1.1. Nominalization in Polish

The division into ACC-*ing* and OF-*ing* nominals (cf. (1b, c, d)) is not accounted for in Polish.

- (6a) sprzedaż samochodu przez Janka
sale car-*Gen* by John
- (6b) sprzedanie samochodu przez Janka
selling car-*Gen* by John
- (6c) *Janek sprzedanie samochód
John-*Nom* selling car-*Acc*
- (6d) *sprzedaż przez Janka
'sales by Janek'

The distinction that is observable in Polish is between result (6a, d) and process nominals (6b). Grzegorzczkova and Puzynina (1999) distinguish “regular” nominals in (7a), and “irregular” nominals in (7b). These types of nominals also differ with respect to the type and number of categorial characteristics they share. The irregular nominals (7b), for example, exhibit restrictions with respect to the arguments they license.

- (7a) pocałowanie Zosi (przez Janka)
kissing Zosia-*Gen* (by John)
- (7b) *pocałunek Zosi (przez Janka)
kiss Zosia-*Gen* (przez Janka)

Pocałowanie can license the direct argument, but *pocałunek* cannot. The nominal *pocałunek Zosi* in (7b) becomes acceptable when the interpretation is changed and Zosia is interpreted as the Agent. This is illustrated with additional context in (8).

- (8) Tomek pragnął zachować każdy pocałunek Zosi w pamięci.
'Tom wished to keep Zosia's every kiss in his memory.'

Polish nominals do not allow adverbial modification but they can be modified by adjectival modifiers.²

- (9a) *nagła/*nagle sprzedaż samochodu*
 ‘sudden/suddenly sale of the car’
- (9b) *nagle/*nagle sprzedanie samochodu*
 ‘sudden/suddenly selling of the car’

The fact that there exist constructs which seem to behave inaccordingly with their traditional categorial labelling is addressed by Jabłońska (2007), who postulates that nominal and verbal projections should be differentiated on a functional sequence. The functional sequence is responsible for the aspectual and thematic meaning that differentiates Agent and Patient arguments.³ In this system, all functional meaning is interpretative and it is related to specific projections in the functional sequence. The projection of relevant layers of the functional sequence is reflected by morphological markers. Nominals in Polish do not exhibit verbal characteristics, such as Case assignment and adverbial modification, because they do not reach the layer of derivation in which Case and agentive characteristics are assigned. Categorisation is seen as an interpretative notion relating to the hierarchical development of the derivation.

Jabłońska (2007) argues that Polish nominals cannot “take over” verbal morphology – they can only realise the bottom or right-side part of the structure. Thus, they are not structural Case assigners and they do not allow adverbial modification associated with higher functional projections. This is shown in (10) on next page.

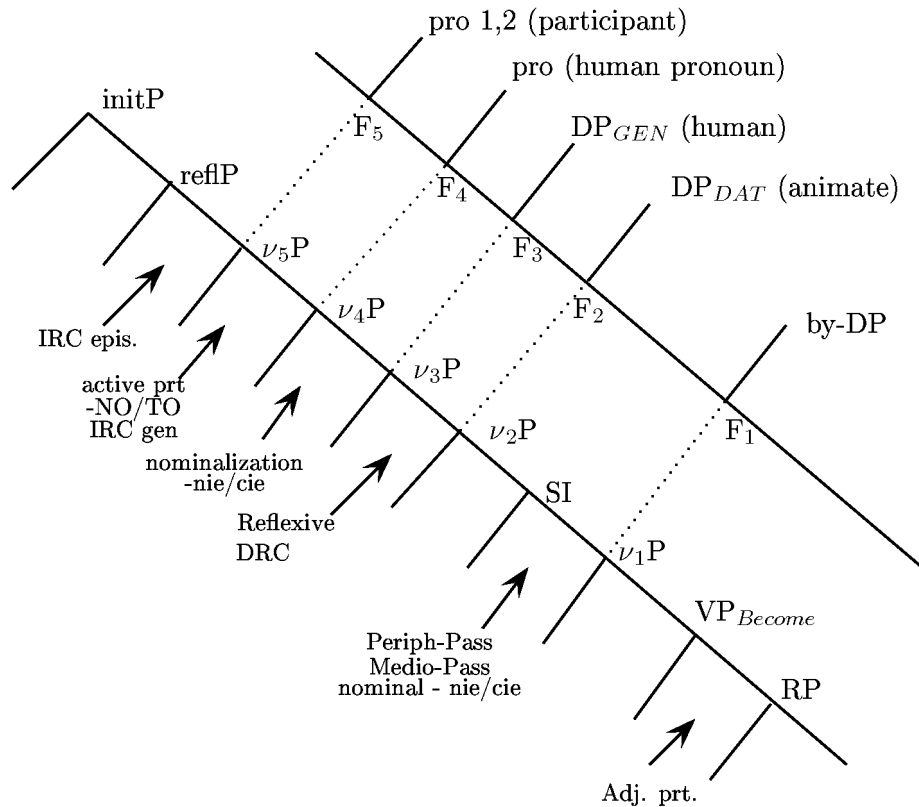
3. A note on the distribution of Participials

This section focuses on participials, which are constructs commonly classified as adjectives but which indicate clear verbal provenance. As such they are an interesting form from the perspective of the notion of syntactic categorization. In English, adjectival morphology is indicated by participial suffixes (*-ing*, *-en*).

² Jabłońska (2007: 272) suggests treating adjectival modifiers of manner in line with their adverbial counterparts: “[...] manner adjectives are indicative of the verbal structure analogously to manner adverbs”. Such a move is in line with the model of DM where a given vocabulary item is not preassigned any syntactic category before it enters derivation. In other words, the modifiers in (9) occupy the position that is available syntactically.

³ In essence, it is similar to Dowty’s (1991) ideas associated with Agent and Patient arguments being differentiated by means of features which themselves form a scale.

(10) Thematic domain (Jabłońska 2007: 361)



- (11a) the (slowly) growing problems with inflation
- (11b) the (slowly) consumed profits
- (11c) the (slowly) written novel
- (11d) the (slowly) constructed building

Similarly to ACC-*ing* nominals, deverbal adjectives license adverbial modification which indicates the presence of verbal structure. In this respect deverbal adjectives tend to differ from root adjectives and that difference is addressed in the following section.

3.1. Root and derived adjectives

In DM word formation is believed to be a syntactic process, hence derived adjectives should indicate instances of inheritance. Participials appear to share some distribution

of verbs and some of adjectives. For example, they fail to be modified by *very* which is an adjectival diagnostic.

- (12a) *a very read book
- (12b) *a very asleep boy
- (12c) *a very built bridge
- (12d) *a very stolen watch

- (13a) a very heavy book
- (13b) a very tall boy
- (13c) a very cruel remark
- (13d) a very happy man

We would like to propose that the verbal characteristics are a result of inheritance, whereas the adjectival characteristics are a result of the adjectivizing projection. Polish participial adjectives behave similarly to their English counterparts; they allow adverbial modification (14), and they disallow *bardzo* ‘very’ (15).

- (14a) szybko sprzedany samochód
‘fast sold car’
- (14b) uważnie przeczytana książka
‘carefully read book’
- (14c) czujnie leżący pies
‘watchfully lying dog’
- (15a) *bardzo sprzedany samochód
‘very sold car’
- (15b) *bardzo przeczytana książka
‘very read book’

4. Event Separators in Polish

The morphology characterising Polish participial adjectives seems to be a common denominator that they share with other constructs which are of interest here. Following Laskowski (1999), adjectival participles are formed by a secondary verbal theme *-n-/-t-/-on-/-ę-* and adjectival inflection. Jabłońska (2007) notices that the morphology present in participle adjectives (which is the same form as in Periphrastic Passive) is also present in the impersonal *-no/to-* construction and *-nie/cie* nominalizations.

- (16a) Książka była czyt-a-n-a/dar-t-a.
'The book was being read/torn.'
- (16b) (prze-)czyt-a-n-a/(po-)dar-t-a książka
'read/torn book'
- (16c) Czyt-a-n-o/Dar-t-o książkę.
'Someone was reading/tearing the book.'
- (16d) czyt-a-n-ie / dar-c-ie książki
'reading/tearing the book'

The common morphological denominator is the suffix *-n/t-*, which Jabłońska calls the Event Separator (ES). The function of the ES is to close off an already existing event and add a new subevent on top of it. The interpretative reflection of this process is the licensing of the external argument. Thus the interpretation of (16) always involves a result state and an initiating event with an implied external argument. The functional sequence is reflected by morphological items which are the lexical root, the verbal Theme, the event separator (Laskowski's secondary verbal theme), and adjectival inflection. The verbal projection is indicated by the verbal theme vowel (Theme_{high}), which in (16) takes the form of *-a-*. The distinguishing factor in (16) is the place in the projection in which the event separator enters the derivation. According to Jabłońska, the interpretation of the covert external argument can be used as a guideline to where the ES enters the derivation. The higher its place in the projection, the more animate/human the interpretation of the implied external argument. The event separator *-n/t-* and the Theme_{high} *-i/y-* are ascribed the following lexical entries:

- (17) ES **-n/t-**: [(V_{Become}, v_n (, v_{n+1} (, ...)))]
-i/y-: [(R (, V_{Become}, v_n, (v_{n+1} (, ...)))]

Jabłońska (2007) argues that the ES can be associated with more than one structural pattern (i.e. two types of *-nie/cie* nominals, as in (18a) and (18b)).

- (18a) Czyt-a-n-ie książki przez Marka
 read-TH-ES-ie book_{GEN} by Marek_{ACC}
 'reading of a book by Marek'
- (18b) Marka czyt-a-n-ie książki
 Marek_{GEN} read-TH-ES-ie book_{GEN}
 'Marek's reading of a book'
- (18c) ??książki czytanie Marka
 'book's reading of Marek'

- (18d) potrącenie Marka przez samochód
hit Marek_{GEN} by car
'Marek being hit by a car'

- (18e) ??samochodu potrącenie Marka
car_{GEN} hit Marek_{GEN}
'the car's hitting Marek'

The verbal nature of a projection is taken to be a gradual phenomenon. For example, (18b) (the 'transitive nominalization') reveals more verbal characteristics than (18a). The Genitive ranks higher on the Agentivity scale than the *by*-phrase. This is further indicated by the fact that verbs without regular Agents are excluded from the transitive nominalization.

- (19a) (*Zosi) przypominanie Tomka
'Zosia's resembling of Tomek'
- (18b) (??Zosi) lubienie Tomka / lubienie Tomka przez Zosię
'Zosia's liking of Tomek / liking Tomek by Zosia'
- (19c) (*burzy) zniszczenie sadów / zniszczenie sadów przez burzę
'storm's destruction of the orchards / the orchards' destruction by the storm'
- (19d) (*komputera) zapisywanie danych / zapisywanie danych przez komputer
'the computer's storing data / storing data by the computer'

The verbal nature of *-nie/cie* nominals is also revealed by their compatibility with time adverbs. This is in line with Jabłońska's account of these nominals, where they are taken to occupy a part of the verbal functional sequence, which makes them sensitive to temporal development.

- (20a) Marka sprzedanie samochodu **wczoraj**
'Marek's selling of the car yesterday'
- (20b) Ani czytanie książki **wczoraj**
'Ania's reading of the book yesterday'
- (20c) *wyniki meczu **wczoraj**
'results of the match yesterday'
- (20d) *zakupy **wczoraj**
'purchases yesterday'

The brief analysis of nominals indicates that they do share some verbal characteristics. Such behaviour, which points to the interpretative nature of syntactic categories, also seems to be true of adjectives, as will be argued in the following sections.

5. Nominals and adjectives in the functional sequence

Jabłońska (2007) argues that adjectival and nominal forms are distinguished by the part of the functional sequence they realise (cf. (10)). Thus, the standard interpretation of nominals is process, whereas that of adjectives is resultant state, which is reflected by the entries below.

(21a) A: [R, V_{Become}, v₁]

(21b) N: [v₂, v₃, ..., initP]

(22a) przeczytana książka
'read book'

(22b) przeczytanie książki
'reading of a book'

The difference is indicated by the interpretation of the implied external argument. The lowest part of the sequence (up until v₁) is associated with the *by*-phrase, and the higher part with the Genitive or *pro-arb*. The *-nie/cie* nominal can be associated with two interpretations: one referring to the action and one referring to the action and the resultant state. When the focus is on the action, realising the external argument in the Genitive Case produces better results (23a–b). When the focus is on the result, the *by*-phrase gives better results (23c–d).

(23a) Marka czytanie książki o sztuce nowoczesnej zaniepokoiło Zosię.
'Mark's reading of a book about modern art worried Zosia.'

(23b) ??Czytanie książki o sztuce nowoczesnej przez Marka zaniepokoiło Zosię.
'Reading of a book about modern art by Mark worried Zosia.'

(23c) ??Marka przeczytanie książki zaniepokoiło Zosię.
'Mark's having read the book worried Zosia.'

(23d) Przeczytanie książki przez Marka zaniepokoiło Zosię.
'Reading of a book by Mark worried Zosia.'

The transitive variant also produces better results with reflexivization, another important diagnostic of *v* projection in Polish.

- (24a) Marka przewrócenie się
'Marek's falling over'
- (24b) ??przewrócenie się przez Marka
'falling over by Marek'
- (24c) *przewrócony się Marek
fall over-*refl* Marek

In comparison to participials, nominals also seem to be doing much better with another agentivity test, which is control of infinitives of purpose.

- (25a) czytanie książek, żeby osiąść wiedzę
'reading of books to acquire knowledge'
- (25b) ??czytane książki, żeby osiąść wiedzę
'books read to acquire knowledge'

As far as the participial forms are concerned, the *by*-phrase is the only viable option.

- (26a) *Marka (prze-)czytana książka
'Mark's read book'
- (26b) (prze-)czytana książka przez Marka
'read book by Mark'

Having adopted the assumption that "functional" interpretation is achieved in the course of derivation, the agentive characteristics of nominals place them in a higher position in the sequence of derivation. In the following section we are going to focus on the structural relations that can be noted to exist between syntactic categories.

6. Investigating the structure of categories

The question we are going to turn to in this section is the relation between derived adjectives and their verbal equivalents. The working hypothesis is that when a given lexeme gives rise both to a verb and an adjective, the structure of the two has to bear some resemblance. Such a comparison is possible once the terms of comparison are stated very broadly. Comparing verbs, nouns and adjectives by means of their specific charac-

teristics is not possible because each of them can be characterized only with respect to a pattern of its own. The relevant dimensions are temporal development, countability and quality. However there is a common denominator which can be used to describe those categories, which is the dichotomy between simple and complex structure (cf. Rappaport Hovav and Levin 1998). That division seems to be present across all three syntactic categories.

6.1. The temporal structure of verbs

The typology of verbs that we can use for our purposes has been succinctly defined in a recent account with reference to Polish and English (Willim 2006). The key division within the verbal domain is between individuated and non-individuated eventualities. Individuated events are characterised by having an inherent endpoint.

Willim (2006: 125) claims that “individuation consists in providing the event with an individuation boundary, which either encloses a process on the right (e.g. *rise 1000 feet, reach the top*), or on the left (e.g. *recognize a face*)”. Events can be associated with a scale of development which in Polish is marked off by a verb in its perfective form. Such a scale presupposes a dynamic typology of verbal constructs, as particular items may be found in different positions along the scale.

6.2. The scalarity of adjectives

Kennedy and McNally (1999) postulate that the scalar structure of deverbal adjectives is determined by the aspectual properties of the source verbs. The distribution of degree modifiers with these forms reveals such correspondence.

(27a) The abuse of public funds was well/??much/??very documented.

(27b) The concert was well/??much/??very publicized.

(28a) a much/??well/??very desired position

(28b) a much/??well/??very needed rest

(29a) ??much/very tall/expensive/happy

(29b) ??much/well acquainted/understood/paid

Kennedy and McNally note that are incompatible with *very* – a test of adjectival status (27, 28). However, they pass other adjectival tests: *un-* prefixation, occurrence as complements of copular verbs (*seem, remain* or *become*), and appearance in comparative constructions.

- (30a) These claims are undocumented, and therefore not admissible in court.
- (30b) The case remained documented on file.
- (30c) Unlike so many tales of UFO crashes all over the world – some more documented than others and some absolute non-sense – Varginha is a milestone in UFO history and is something I will die defending. [a result of a Google search]

Kennedy and McNally argue that *very* is sensitive to the internal build-up of adjectives. They propose a semantic typology of adjectives based on their scalar structure, where the key distinction is between a standard with an open scale, and a standard with a closed scale. The scalar structure of deverbal adjectives is determined by the aspectual properties of source verbs.

The modifier *very* is compatible only with adjectives with an open scale, which is context dependent (e.g. *tall*, *expensive*). *Well* is compatible only with adjectives with a closed scale, which is independent of context (e.g. *awake*). All that needs to be said about participial adjectives at this point is that they are always associated with the closed scale, and as a consequence they are incompatible with *very*.

According to Kennedy and McNally (1999), there exists a mapping between the aspectuality of a verb and the scalar structure of a participial adjective. This mapping is most clearly visible in participial adjectives derived from verbs that have an incremental theme. These adjectives always have a closed scale. This is testable by compatibility with proportional modifiers like *completely/fully/partially*. As indicated by the examples in (31), adjectives based on verbs which do not license an incremental theme disallow modification by *completely*. Adjectives based on verbs with an incremental theme (32) allow modification by *completely*.

- (31a) ?? a completely hated/loved/envied/admired neighbor (states)
- (31b) ?? a fully needed/wanted rest
- (31c) ?? a partially regretted action
- (31d) ?? a completely looked for/expected reaction (activities)
- (31e) ?? a fully driven/pushed car
- (31f) ?? a completely watched suspect
- (31g) ?? a partially kissed/met/punched young man (semelfactive)
- (31h) ?? a completely worried/pleased/surprised mother (change of state without incremental theme)

- (32a) a partially eaten meal (incremental theme present)
- (32b) a fully written novel
- (32c) completely loaded hay
- (32d) a completely paid bill
- (32e) fully straightened teeth
- (32f) a partially heard response

(32g) a partially anticipated reply

(32h) a fully understood problem

The existence of temporal development is mapped onto the existence of a standard with a closed scale of the derived adjective. Temporal development is what characterizes process verbs. Thus, Polish verbs which never allow a process interpretation (morphologically marked by the Theme_{low} suffix, inchoative *-n-* and *-ej-*) do not form participial adjectives, as these require the presence of a complex event (i.e. consisting of a process and a result state). This is illustrated with the Polish examples below.

(33a) biel-**ej**-ą-ce drzewa
becoming white trees

(33b) *Te drzewa są biel-**ej**-ące.
'These trees are becoming white.'

(33c) *biel-**ej**-e-nie
'becoming white'

(33d) *wybiel-**ej**-one drzewo / wybielone drzewo (wybiel-**i**-ć, Theme_{high})
'tree that became white'⁴

A brief look at Polish participials indicates that they are compatible with proportional modifiers, which refer to the end of the scale or its partial completion.

(34a) ??Ten samochód jest całkowicie/częściowo długi/drogi/piękny. (open scale)
'This car is completely/partially long/expensive/beautiful.'

(34b) Ten pojemnik jest całkowicie/częściowo pomalowany/pełny/zbadany.
(closed scale)
'This container is completely/partially painted/full/tested.'

Polish *bardzo* 'very' and *dobrze* 'well' behave similarly to their English counterparts. *Bardzo* is sensitive to the open scale standard, whereas *dobrze* is sensitive to the closed scale standard.

(35a) bardzo / *dobrze wysoki budynek
'very / well tall building'

(35b) bardzo / *dobrze drogi samochód
'very / well expensive car'

⁴ For a discussion of forms like *opadły liść* 'a fallen leaf', *upadły anioł* 'a fallen angel' see Section 6.3, as well as Jabłońska (2007: 243).

- (36a) ??bardzo / dobrze znany aktor
'very / well known actor'
- (36b) ??bardzo / dobrze zbudowany most
'very / well built bridge'
- (36c) ??bardzo / ??dobrze pełna szklanka
'very / well full glass'
- (36d) ??bardzo / ??dobrze pusty pojemnik
'very / well empty container'

Although deverbal adjectives allow modification by *dobrze* 'well' (36a–b), non-derived adjectives representing the trivial standard give poor results (36c–d). This suggests that *dobrze* needs to be treated as an adverbial modifier, which is compatible with verbal constructs.

6.3. The parallels between categories

In this section, we would like to compare the realisation of particular lexical items across the three categories (verbal, nominal, and participial) and focus on the correspondences that exist between them. In Polish, the correspondence between these forms is indicated morphologically by the presence of thematic vowels and the event separator (Jabłońska 2007). Such morphological marking, in DM's terms, is directly related to functional projection

Now let us have a look at how particular lexemes behave with respect to relevant diagnostics. We begin with activity verbs, which are characterized by possessing the process eventuality only. This characteristic relates to their inability to form adjectival participles (37c) and their unacceptability with a *by*-phrase (37b). The adjectival participle form is possible only with a prefixed structure. This is in line with the analysis of Polish prefixes as realising the result phrase (cf. Ramchand 2006; Jabłońska 2007). Once this projection is present, the context for the event separator *-n/-* is met and a participial form can be derived. Moreover, the modification by *dobrze* 'well' indicates that the adjectival form represents the closed standard, and its interpretation of quality suggests that it has an upper endpoint.

- (37a) Zosia spaceruje / biegnie.
'Zosia is walking / running.'
- (37b) *spacerowanie przez Zosię / spacerowanie Zosi
'walking by Zosia / Zosia's walking'
- (37c) *spacerowana Zosia
'walked Zosia'

- (37d) *bardzo / dobrze przespacerowana niedziela
 very / well *prze*-walked Sunday
 ‘very / well walked-through Sunday / Sunday devoted to walking’

A brief look at unaccusative verbs shows that their behaviour is in line with their treatment as verbs which only possess the lower verbal projection (V_{Become}). Following Jabłońska (2007), in Polish this is indicated morphologically by the relevant Theme_{low} vowel (-*ej*-). Because the structure lacks the *v* projection and hence an implied external argument, the unacceptability with a *by*-phrase follows. The fact that there is only one verbal projection does not suffice for it to meet the minimum requirements for the event separator -*n/t*-. However, there exists another event separator (-*l*-) which is applicable in such contexts. This event separator does not require the presence of the higher verbal projection and is equivalent to resultatives in other languages.

- (38) ES -*l*-: [$V_{Become} (, v_n (, v_{n+1} (, \dots)))$]
 (39a) Cena akcji spad-**l**-a / *spad-**n**-ęła.
 ‘The price of shares fell.’
 (39b) *spadanie przez ceny akcji / spadanie cen akcji
 ‘falling by the price of shares / the price of shares’ falling’
 (39c) *spadnięta cena akcji
 ‘fallen price of shares’

As far as stative verbs are concerned, they are believed to be represented by a similar structural projection to that of activities but lower on Jabłońska’s functional sequence. Another difference which is of more importance is that they cannot undergo event augmentation (cf. Rappaport Hovav and Levin 1998), which would turn them into accomplishments. In other words, states do not license a result phrase but they are compatible with phrases which mark the beginning of the state (i.e. inceptives). The simple structure representing states possesses the *v* projection but not the V_{Become} projection.

- (40a) Ten posiłek zawiera dużo białka.
 ‘This meal contains a lot of protein.’
 (40b) ??zawieranie białka przez posiłek / *posiłku zawieranie białka
 ‘containing protein by the meal / the meal’s containing protein’
 (40c) *zawierane białko / zawarte białko (cf. *zawrzeć*)
 ‘contained protein’

Finally, we arrive at accomplishment verbs, which are characterised by complex structure and the development of the whole functional sequence. Because accomplishments generally license Agents or Causes, they allow nominals with a *by*-phrase (41b). Since they license the whole functional sequence, their compatibility with adjectival participles is not surprising (41c). The ‘quality’ interpretation of *dobrze* further strengthens the fact that this adjectival form has a closed scale with the upper endpoint.

- (41a) Janek buduje dom.
‘Janek is building a house.’
- (41b) budowanie domu przez Janka / Janka budowanie domu
‘building a house by Janek / Janek’s building of a house’
- (41c) *bardzo / dobrze / *mocno zbudowany (przez Janka) dom
‘very / well / much built (by Janek) house’

The analysis of the Polish data in this section supports the claim that the structure of deverbal adjectives and deverbal nouns is to a large extent predetermined by the type of verb which constitutes their base. The development of these forms has been related to the functional sequence. Adopting derivation along the functional sequence adds explanatory force to this analysis, as the shape of the lower part of the sequence precludes the development of certain projections further up the derivation.

7. Conclusion

The analysis presented in this paper hinged on the assumption of neo-constructionist accounts that categories are interpretative notions read off from the structural projection. This view seems to reflect the old structuralist premise that distribution determines category assignment. In the course of the paper, we adopted the approach of Jabłońska (2007), who claims that aspectual interpretation develops along a well defined hierarchy which is related to a functional sequence. Various languages define the sequence by means of morphological markers and Polish seems to be the case in point. The existence of the functional sequence provides a strong theoretical tool for explaining the relation that exists between verbs and the constructs derived from them, such as nominals and participials.⁵ All these forms share part of their projection, which accounts for their as-

⁵ At this point reference should also be made to a recent account of categorisation presented by Kayne (2008). Kayne rejects the assumption that lexical roots are typologically “bare” and argues that all lexical items are inherently “nouns” or “non-nouns”. All other categories are complex and are derived from nouns. On Kayne’s account, categorization is seen as entirely interpretative on syntax, hence there is no room for DM’s categorizers. This account is in line with Jabłońska’s (2007) view on syntactic categories as purely interpretative notions. However, we believe that interpretative accounts can be reconciled with DM. Morphological elements which are dubbed categorizers in DM also receive lexical status on these accounts. The way

pectual similarity. The differences that exist between them should also be ascribed to their varying derivation along the structural projection.

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in which their analysis differs relates to the inability of such elements to change the inherent category of a lexical item they appear with; they can only modify it. Thus the difference appears to be one of quality, not quantity.