VN COMPOUNDS IN ITALIAN AND SOME OTHER ROMANCE LANGUAGES, PHRASAL SPELL-OUT AND REBOOTING

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Abstract: *In this paper, I will show that an account based on the idea of Phrasal Spell-out can elegantly account for some puzzles regarding VN compounds in Romance languages, interpreted here as 'lexicalized modifying clauses'. I advance the hypothesis of a rebooting mechanism in extended projections as an alternative to the postulation of silent items to account for the ambiguous nature of VN words that can appear either as noun or adjectives/adverbials. With such an approach no compounding rules are involved and we do not need to resort to categorial underspecification to account for the 'VN facts'.*

Keywords: *Italian, idiom, Phrasal Spell-out, relative clause, VN compound.*

1. Introduction

In this paper, I will provide a new account of the structure of (allegedly exocentric) Romance VN compounds[1] of the type *limpiabotas* (Spanish), *lustrascarpe* (Italian) (both: shoeshine) based on the mechanism of Phrasal Spell-Out. Phrasal Spell-Out states that Spell-Out applies to syntactic phrases and that more than mere terminals are stored in the lexicon (Starke 2009, 2011a). This leads to the consequence that there can't be any pre-syntactic lexicon. Specifically, Phrasal Spell-Out admits lexical insertion to target non-terminal nodes, namely, phrasal nodes (see e.g. Neeleman and Szendrői 2007; Caha 2009; Pantcheva 2011; Franco 2012, 2013). In a word, with a Phrasal Spell-Out tool, lexical entries can spell out phrasal nodes. If morphemes and words are able to target phrasal nodes, this implies that lexical items potentially correspond to syntactic structures and not (exclusively) single heads (Fábregas 2009, 165-166)[2].

I will show that a mechanism of this sort can account in a principled way all the puzzling aspects of VN compounds *unheeded* by previous syntactic approaches[3], in which either a (variably declined) process of nominalization of V and its sister node (see e.g. Di

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[1] For comprehensive descriptions of VN formations in Romance languages the interested reader may refer to Gather (2001) or to the works collected in Scalise and Masini (2012).

[2] The idea that a lexical item can be inserted straight into a phrasal node has been originally proposed by McCawley (1968) in the framework of *Generative Semantics*.

[3] A syntactic (or, at least, a *sub-lexical*) analysis of VN words is empirically motivated by neurolinguistic studies on impaired populations (see e.g. Semenza et al. 1997; Mondini et al. 2004; Franco et al. 2013).

Sciullo and Williams 1987), more layered derivations involving *v* (Bok-Bennema and Kampers-Mahne 2005; Schroten 2010) and the Inflectional field (Ferrari-Bridgers 2005) or a structure involving a covert agentive suffix on V (Bisetto 1999, 2004) are assumed. These problematic or *peripheral* (Magni 2010) issues include:

(a) Their (huge) productivity as *modifiers*;
(b) Their *idiomatic* reading (at least) when used as modifiers of V;
(c) The behaviour of a (broad) set of VN compounds, where the N involved *is not* the internal argument of V.

We will show below that these puzzling issues can be elegantly solved by interpreting VN words as spelling-out full clauses in the nominal (and, marginally, in the verbal) domain.

2. VN puzzles

2.1 The inner modifying nature of VN compounds

Scalise (1992, 191) states that in Italian: "*one type of highly productive compound is the [V + N] compound which is always a noun*". Nevertheless, clear evidence for a modifying nature of a set of Italian VN items is reported in Ricca (2005), who showed that, while there are many instances of VN compounds alternating between a nominal and an adjectival reading (1a,c), there are also many purely adjectival VN words (1b,d) (i.e. they cannot *host* a nominal projection on their own)[4].

(1)   a. aiuola spartitraffico;   vano portabagagli;   pistola sparachiodi.
          (flower.bed traffic divider); (compartment car trunk);   (nail gun)
      b. mozzafiato;   strappalacrime;   spaccatimpani.
          (breath-taking);   (tear-jerking);   (eardrum-breaking)
      c. [$_{DP}$ lo spartitraffico]
          (the traffic divider)
      d. [$_{DP}$ *il/la mozzafiato]
          (the breath-taking)

These formations represent a problem for those proposals that (in various ways) postulate *zero* derivations (since Marchand 1969), *light* nouns (see e.g. Bok-Bennema and Kampers-Mahne 2005; Ferrari-Bridgers 2005) or covert nominalizers in a parasynthetic construction of the type *[[V N]Ø $_N$]$_N$* (see e.g. Bisetto and Melloni 2008; Bisetto 2004;

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[4] In a survey performed on the *Repubblica Corpus*, Ricca (2005, 475) found that, among *neologisms*, the most productive forms are adjectival VN words (74 tokens), followed by nominal items (38 tokens) and *hybrid* adjectival-nominal ones (4 tokens). Modifying VN compounds are common in all Romance languages. Consider the VN words below from French and Spanish, taken from Magni (2010, 6):

(i) a. casse-cou 'reckless' lit. break.neck
     b. tronchamozas 'seducing' lit. break.girls

Scalise et al. 2005; see also Lieber 1992 and Ackema and Neeleman 2004 for analyses *beyond* Romance).

Indeed, it is difficult to assume that a covert suffix in a derivational process can be both a *nominalizer* and an *adjectivizer* at the same time and, additionally, it is costly to argue for a *dual route* model involving two different processes of word formation (see Rainer 1993, 274-275). Interestingly, as shown in Ricca (2005, 475), who based his analysis on a corpus of Italian journalistic writing, neologisms in VN formation are mostly *pure* adjectives of the type of (1b) above (see also Tóth 2010, 525; cf. fn. 4).

2.2 The idiomatic reading of VN as modifiers of V

There is a set of Italian VN compounds that can be used only as *locuzioni avverbiali* (adverbial phrases, see Ramaglia 2011), preceded by a preposition[5]. Again, these items cannot be used in *independent* nominal phrases:

(2)   a. Gianni   sa   storia   a   mena$_V$dito$_N$.
              Gianni   know.prs.3sg history   p   inside.out lit. *wallop.finger*
              'Gianni knows history inside out'
    b. Gianni   corre   a   perdi$_V$fiato$_N$.
              Gianni   run.prs.3sg   p   like.hell   lit. *lose.breath*
              'Gianni runs like hell'
    c. Gianni   ride   a   crepa$_V$pelle$_N$.
              Gianni   laugh.prs.3sg p   fit.to.burst lit. *die.skin*
              'Gianni laughs fit to burst'
    d. Gianni   canta   a   squarcia$_V$gola$_N$.
              Gianni   sing.prs.3sg   p   the.top.of.one's.voice lit. *slash.throat*
              'Gianni sings at the top of his voice'
    e. Gianni   arrivò   in un batti$_V$baleno$_N$
              Gianni   arrive.pst.3sg p art twinkling.of.an.eye lit. *beat.lightning*
              'Gianni has arrived in the twinkling of an eye'
    f. *il menadito; *il perdifiato; *la crepapelle; *la squarciagola;
        *il battibaleno.

The nominal nature of the items in (2) can be gathered from the fact that they are selected by a preposition (see Mateu 2002) and by the fact that the example in (2e) displays the indefinite determiner *un* before the VN item, but strangely they cannot host nominal phrases on their own. Thus, it is arguable for them a *frozen*/idiomatic nature in adverbial expressions. To our knowledge, with the exception of Gross (1986) and De Gioia (2001), no formal account has taken them into consideration so far.

Actually, their status of 'frozen nouns' represents a problem for those accounts that

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[5] As shown by Magni (2010, 7) the idiomatic use of VN items as adverbials is not restricted to Italian. Consider the examples below:
(i) (crier) à tue-tête 'shout at the top of one's voice' lit. kill.head. *French*
(ii) (pagar) a tocateja 'pay cash' lit. touch.tile. *Spanish*

assume that the output category of compounds is *underspecified* (Ricca 2005, 484)[6]. In the adverbial VNs in (2), the categorical features are determined (inferred) by the syntactic environment, but at the same time, these VNs do not behave as nouns (e.g. they cannot be modified, they cannot enter a Determiner Phrase, they do not properly *denote* (see Kayne 2009, 7-8). Adverbial VNs are idiomatic constructions.

2.3. When N is not the sister node of V

Rainer and Varela (1992, 129) say that in Spanish VN words "*the noun has to satisfy the internal argument position of the verb*" and Scalise (1992, 191) states that in Italian VNs "*only the direct internal arguments of the verb can appear*", while "*the external argument of the verb does not appear to play any role in compounds*". Nevertheless, the syntactic architecture underlying VN words and the 'thematic' relation between the constituents are far more puzzling.

First, we can find VN words where the N is the subject of V as in the Italian examples in (3) (see Dardano 2009; Magni 2010):

(3)   marciapiedi   /   batticuore
        (sidewalk) lit. *walk.feet*   (anxiety) lit. *hit.heart*

Second, we can find VN items in which N is the prepositional object, as shown in (4)[7]:

(4)   a.   girasole (Italian) / tournesol (French)
             (sunflower) lit. *turn.sun*;
        b.   mangiaufo (Italian)
             (scrounger) lit. *eat.without.paying*;
        c.   saltimbocca (Italian)
             (rolled veal and ham) lit. *jump.in.mouth*
        d.   cantambanco (Italian)
             (storyteller, also charlatan) lit. *sing.in.desk*
        e.   pissenlit (French)
             (dandelion) lit. *piss.in.bed*;
        f.   réveille-matin (French)
             (alarm clock) lit. *awake.morning*.

Third, we can find VN items in which the noun appears to be 'the sister node' of an unergative verbs (namely, formations that would lead to ungrammaticality in syntax) as in

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[6] For arguments in favour of the psychological reality of *underspecification* see Barner and Bale (2002). Against this view, see the empirical evidence for categorial features on roots collected by Don (2004). See also Panagiotidis (2005) for arguments against category-less roots in syntax.

[7] On the topic of oblique N in VN compounds, Magni (2010) has performed an extensive empirical survey among Romance languages. In particular, she found that VN items of the type '*protect from N*' (e.g. Italian *parafango* 'mudguard', lit. protect.mud; Spanish *guarda-brisa* 'windshield', lit. protect.breeze; French *protège-soleil* 'parasol', lit. protect.sun) are very productive and imply an underlying architecture with a prepositional phrase assigning an 'oblique object role' for the N involved in the compound.

(5), unaccusative verbs (*pace* Bok-Bennema and Kampers Mahne 2005, 15) as in (6), or is an *object experiencer* (see Belletti and Rizzi 1988; see also Arad 1998) as in (7). The examples below in (5-7) are from Italian (cf. also Rosenberg 2011 for a set of French examples).

(5)   a. tremacuore
            (trepidation) lit. *tremble.heart*; *tremare*, to tremble - *unergative*;
    b. corrimano
            (handrail) lit. *run.hand*; *correre*, to run - *unergative*;

(6)   a. scendiletto
            (bedside rug), lit. *get.down.bed*; *scendere*, to get down - *unaccusative*;
    b. tornaconto
            (profit) lit. *come.back.count*; *tornare*, to come back - *unaccusative*;
    c. caschimpetto[8]
            (necklace) lit. *fall.in.chest*; *cascare*, to fall - *unaccusative*;

(7)   a. spaventapasseri
            (scarecrow) lit. *frighten.crows*; spaventare, to frighten - *psych-verb of the* 'preoccupare' *class* (cf. A. Belletti and L. Rizzi 1988);
    b. attirallocchi
            (fake) lit. *attract.tawny.owl*, *attirare*, to attract - *psych-verb.*

Again, no previous formal (i.e. syntactic) account of VN formations in Romance languages has taken into account these *prima facie* peripheral cases.

2.4. VN words as modifying clauses: Phrasal Spell-out at work

Given the puzzling facts sketched above, I advance the proposal that VN items originate in *modifying* full clauses in the nominal (and marginally in the verbal) domain. Indeed, we have seen that we have a huge set of adjectival VN and also some adverbials 'idiomatic' VN. Actually, the idiomatic reading of adverbial VNs is the 'embryonic engine' for a Phrasal Spell-Out account. Indeed, as argued in Starke (2011, 6):

> "Within the traditional approach, there is no easy way to handle multi-word idiomatic expressions, as witnessed by the clunkiness of the existing attempts at handling idioms while at the same time confining spell-out to terminals. Under phrasal spell-out, idioms are natural: they are cases in which a relatively high-level constituent has been stored. The traditional example of "kick the bucket" can now be rendered as the lexicon storing an entire VP, or the modern-day equivalent of a VP (e.g. a syntactic layer above AspP)".

Notice that a non-compositional (idiomatic) reading of VN compounds is widely attested *beyond* the peripheral adverbial formations introduced in (2). See for instance the Italian nouns *coprifuoco* (curfew, lit. *cover.fire*) or *beccamorto* (undertaker, lit. *peck.dead*), among many other possible examples (cf. Dardano 2009). These facts show that it is possible to consider Romance VN words as multi-terminal expressions stored in the lexicon

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[8] This item has the peculiarity of selecting a prepositional N object, matching the examples in (4).

such as they are, matching Starke's (2009, 2011a) Phrasal Spell-Out account of verbal idioms of the '*kick the bucket*' type (see also Fillmore et al. 1988).

Further, proceeding *from the periphery to the core* (Magni 2010) the most reasonable/inexpensive proposal to account for the great productivity of VN compounds as adjectives, is to consider that they are lexically stored constituents resuming full relative (or to some extent adverbial, given the examples in (2)) clauses. I will show below the reason why it is a welcome solution to lexicalize VN structures (phrases) by the mean of a Phrasal Spell-Out mechanism right in the highest node, namely in CP[9]: a (relative) clause analysis of VN compounds can elegantly account for those formations in which N is not the direct object/patient of V.

As said before, VN items have been previously treated as lexicalizations of VP/*v*P/AspP (see Di Sciullo and Williams 1987; Bok Bennema and Kampers Mahne 2005; Schroten 2010, among others). Their CP nature has been *obliterated* by the fact that, being inherently modifying clauses, one of their arguments shares the same referent with the 'matrix' noun phrase and is therefore implicit.

This is the reason why we do not have knowledge of *NVN words. It is arguable that, in such a model, the primacy of N in the direct object position of VN formations is due to processing constraints. Indeed, many psycholinguistic works (see Friedmann et al. 2009, and references cited there) have found that children (and adults) find (at least a set of) object relative clauses as in (8) far much harder to understand (and produce) than subject relatives as in (9).

(8)   il ragazzo che la formica ha schiacciato ~~il ragazzo~~
        'the boy that the ant squashed'

(9)   il ragazzo che ha ~~il ragazzo~~ schiacciato la formica
        'the boy that squashed the ant'

Hence, assuming that lexicalization processes match preferentially unmarked constructions we have a reasonable explanation for the greater than chance frequency of VN items in which N is the object of V (namely, they represent *lexicalized* subject relative clauses).

Nothing prevents, however, the realization of marked constructions, and this is the reason that we find 'subject' VN compounds (see the presence of many unergative and unaccusative V in VNs)[10], such as the Spanish *andaniño* ('baby-walker', lit. *go.baby*) or the Italian *battiscopa* ('skirting board', lit. *hit.broom*) and the quite productive type of oblique

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[9] Notice that a 'relative clause' origin for VN words has also been advanced in classic descriptive works on the topic. See Tollemache (1945), Benveniste (1966), Coseriu (1978), Dardano (1978), among others. The interpretation of VN items as lexicalized modifying clauses has been also suggested in Ulland (1993) for French.

[10] A question arises about the behaviour of *subject N* in VN items. Why do they not have the shape of *NV* compounds? Actually, subjects in post-verbal position in Romance languages are quite common. Standardly, they have been assumed to be in an *in situ* SpecVP position in their VSO order (see Ordóñez 1998; Alexiadou and Anagnostopoulou 2001; Cardinaletti 2004, among others), whereas verbs rise to T. Thus, it is possible to consider that V rises to T (or following Ferrari Bridgers 2005, 68-69 in a *generic aspect* position in a layered IP *à la* Cinque 1999) before lexicalization applies, while the subject remains in its SpecVP position.

object VNs (e.g. French *garde-boue*, 'mudguard', lit *protect.mud* or Portuguese *guarda-chuva* 'umbrella' lit. *protect.rain*).

For the purpose of this work, we can remain agnostic about the precise nature (e.g. restrictive *vs.* appositive) or the exact underlying syntactic configuration (e.g. matching *vs.* raising) of these lexicalized relative clauses[11]. Nevertheless, I will assume here the unifying analysis of Cinque (2003, and following works), who considers relative clauses as prenominal modifiers in the extended projection of the noun [12]. Cinque's proposal is roughly sketched in (10) and, as I will show below, it can lead to interesting possible interpretations on the behaviour of VN items. A representation of the Phrasal Spell-Out mechanism of VN words in such a model is given in (11), where the VN compound spells out (the *lexical* content below) the CP node.

(10) $[Q_{univ} \dots [Dem \dots [Num_{ord} \dots [R_{el}C \dots [Num_{card} \dots [Cl \dots [A \dots [NP]]]]]]]]$

(11)
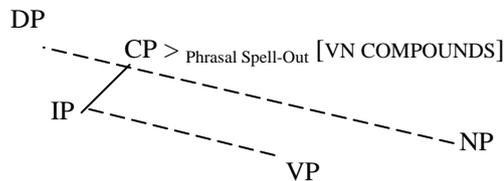
Actually, the idea of a lexicalization of VN *clauses* implies that all functional material is erased and two issues arise at this point.

First, what is the nature of the verbal element in VN compounds? For instance in Italian, it has been considered an *imperative form* (Rohlfs 1968; Floricic 2008; Progovac and Locke 2009), an indicative third person singular (Di Sciullo 1992), a deverbal nominal form (Zuffi 1981; Bisetto 2004); a *root* plus a thematic vowel (Scalise 1992; cf. also Ralli 2008, who argues that the thematic vowel acts as a *linker*). All these hypotheses have weak points (see Ferrari Bridges 2005; Floricic 2008). We propose here, following Vogel and Napoli (1995; see also Pagliaro 1930), that the verbal constituent of VNs is an uninflected stem form (or the *smallest processable unit*, M. Rita Manzini, p.c.), due to the 'erosion' of functional material triggered by the application of Phrasal Spell-Out.

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[11] Interestingly, on typological grounds, the lexicalization of *full* relative clauses is a widespread phenomenon. Just to give an example, in Divenhi, a Indo-Aryan language of the Maldives, lexicalized *adjectival* relative clauses are quite common. Examples are *nasību dera* 'unlucky' (from 'luck is bad') or *biru кuđa* 'brave' (from 'fear is small'). Also, some *verbal* relative clauses are lexicalized as adjectives: *agu huri* 'valuable' (from 'there is value'), *nan huri* 'famous' (from 'there is the name') (Cain and Gair 2000, 30).

[12] Cinque's proposal is particularly appealing because, relying on Kayne's (1994) theory of Antisymmetry, hypothesizes that the different types of relative clause found in natural languages (e.g. post-nominal, prenominal, internally headed, correlative, headless, etc.) can be derived from one and the same syntactic configuration. Concerning their locus of *merge* within the functional skeleton of the nominal projection, Cinque - basing on a huge set of typological data - argues that relative clauses are sandwiched between the numeral and the demonstrative, even if a lower *slot* (between the numeral and adjectives) is also a possible option, especially for *reduced* relative clauses (see the representation given in (10)).

Second, why is gender variably assigned to VN items (e.g Italian *il giradischi*, the._{masculine} record-player, *la lavastoviglie*, the._{feminine} dishwasher) and not set to a default value, if we do have to erase functional materials to phrasally store them? Actually, Barrie (2011, 169) notes that VN words "*are nearly universally masculine across all Romance languages*". This is very close to a default value (cf. also von Heusinger and Schwarze 2013). Notice that our proposal is not in contrast with Gracanin-Yuksek (2005)'s idea of a higher 'nominalizing' node in which gender is computed. Concerning this, consider that a possibility is that that gender inflection is not, in fact, a syntactic object but a *dissociated morpheme* along the lines of Embick (1997), and Embick and Noyer (2001).

Approximately, the same pattern holds for number features: VN's nominal side is either plural or mass (cf. Dardano 1978; Barrie 2011). As for gender, we have counterexamples (e.g. French *tire-bouchon*, 'corkscrew_{sing}'), but the pattern *plural/mass* is respected in most cases and again we are close to a default (possibly post-syntactic) value. In our view the *suction* of functional material is possibly an economy driven process (in the sense of e.g. van Gelderen 2004) to allow full clauses to be stored in the lexicon.

Notice that, interestingly, also many idioms of the *kick the bucket* type in Italian erase functional material in the VP as shown in (12)[13].

(12)   a. I ragazzi hanno fatto il fuoco > compositional reading
            'The boys lit the fire' lit. 'made the fire'
        b. I ragazzi hanno fatto ~~il~~ fuoco > idiomatic reading
            'The boys shot' lit. 'made fire'
        c. Gianni vuole attaccare il bottone > compositional reading
            'Gianni wants to sew the button'
        d. Gianni vuole attaccare ~~il~~ bottone > idiomatic reading
            'Gianni wants to pick up'

Furthermore, our *clausal* proposal can be elegantly extended to other (allegedly exocentric) Romance compounds of the PN (e.g. Italian *fuoristrada*, all-terrein vehicle, lit. out.road), NA (e.g. Italian *pellerossa*, American Indian, lit. red.skin) or AN (e.g. Italian *purosangue* thoroughbred, lit. pure.blood) type[14]. Here the verbs of the *Phrasally* spelled-out clauses turned into compounds are erased being functional items: *be*, *have* or also *causatives*[15]. Notice, indeed, that causatives are 'slight productive' in VN constructions (cf.

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[13] The idea of functional 'erosion' presented here is connected to the idea that syntactic functional nodes can be phonologically *silent*, but still be there (see e.g. Kayne 2003). This is a tenant of the cartographic paradigm (Cinque and Rizzi 2010), who argues for the universal character of functional/grammatical hierarchical structure, despite the fact that no language seems to work out the whole structure with 'pronounced' items. Nevertheless, I believe that syntactic *silence* is sensitive to the functional/lexical divide (i.e. items with a *lexical content* cannot be silent). Thus, in section 4, I will advance an alternative to *silence* based on the *rebooting* of extended projections.

[14] Note that Franco et al. (2013) provide empirical (neurolinguistic) evidence for a common nature of VN, PN, NA, etc. 'exocentric' compounds.

[15] Consider for instance the Italian NA compound *pellerossa*. The mechanism of Phrasal Spell-out, in this case, would be as follows.

(i)   [*X* [_{CP} ~~che ha la~~ pelle rossa]] > *(Phrasal) spell-out in the CP node = 'pelle rossa'*

Fradin 2009, 426-27). See for instance the French *pisse-chien*, 'plant which makes the dog pee', lit. 'pee.dog'. Clauses involving causative structures may be the underlying source of some *subject* VN compounds (cf. for instance examples (3) and (5a,b) above).

Finally, our idea is somewhat coherent with what is stated in Gaeta and Ricca (2009, 41), who precisely observe that:

> "many VN-formations occurring in newspaper corpora in modifier function could hardly be labeled as restrictive or qualifying adjectives; rather, they express a looser kind of modification, with transient/ eventive character, bordering on the function of a (reduced) relative clause."

4. Extended projections and Rebooting

We have seen that our idea appealingly explain the great productivity of modifying VN items, but what about VN nouns in a model such as the one in (11)? An immediate explanation can be that such VNs modify a *silent* (light) noun along the lines of e.g. Cinque (2011), but there are empirical facts that go against this idea on cross-linguistic grounds as shown by Dryer (2004)[16]. A tentative alternative explanation is that VN nominalization is associated to the *reboot* of an extended projection[17]. This idea can be sketched as a principle as follows:

(13)   Extended Projection Reboot Principle: *If a modifier, hosted in Spec of a X° in an extended projection (exP; e.g. NP, VP etc.), happens to be Phrasally Spelled-Out as XP, the aforementioned exP can freeze (be pruned), so that XP can inherit exP (e.g. NP/VP etc.) categorial status. Iff the (phrasal) modifier inherits categorial status in XP, the exP reset/reboot up from there.*

This idea might seem utterly speculative at first sight, but actually has many advantages:

a) It does not need to resort to empty (postulated) lexical elements in syntax;

b) Specifically concerning VN items, we do not need to resort to arbitrary (ad hoc) XP to X° conversion/*recycling* (see Bok Bennema and Kampers Mahne 2005, 24-25; see

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The embedded verb here is *ha* (have$_{prs.3sg}$), which being a functional item is subject to *erosion* together with the complementizer *che* (that) and the determiner *la* (the$_f$).

[16] Dryer (2004, 49) argues that it is not clear that all natural languages "*have a general noun for 'thing' that can be used not only for concrete things but for any abstract thing as well*". He cites Kutenai, an isolate language spoken in western Canada as an example. Further, he provides interesting data from Cebuano (an Austronesian language of the Philippines), where a silent noun account of 'noun phrases missing nouns' is ruled out by the fact that Cebuano allows noun phrases consisting of just an article plus a clause, and thus there is very little motivation for positing a silent head noun (see the discussion in Dryer 2004, 49-51).

[17] With the term 'extended projection' (originally coined in Grimshaw 1991), I mean the ordered set of *functional* heads dominating a *lexical* category (e.g. Tense, Aspect, etc. for the category 'Verb' or Determiner, Numeral, etc. for the category 'noun', cf. the Cinquen structure in (10)).

also Di Sciullo and Williams 1987), because here we move straight 'phrasally';

c) We do not need to resort to categorial underspecification or double routes to word formation to account for the ambiguous nature of VN words (manifesting themselves either as nouns or modifiers).

Notice that, for what concerns the latter point, a possibility could be also to parameterize the height of Phrasal Spell-Out (along the lines of Starke 2011a). In our case, considering the model sketched above in (11) and applying rebooting as introduced in (13), VN *modifiers* would be spelled-out in IP, while VN *nouns* would be spelled-out in CP.

Empirical facts support the rebooting idea. Indeed, many genetically diverse languages allow noun phrases with relative clauses and without nouns (e.g. headless relatives) (cf. Dryer 2011). For example, (14a) from Miya, a Chadic language spoken in Nigeria, is a noun phrase consisting of *just* a relative clause, with exactly the same form as the relative clause modifying a noun in (14b) (Dryer 2004, 46).

(14)   a. má   ráɗaza
           REL.FEM.SG   wet
           'the one [*feminine, singular*] that is wet'   (Schuh 1998, 266)
       b. kàba   [ráɗaza]
           gown   [REL.FEM.SG wet]
           'the gown that is wet'   (Schuh 1998, 263)

Moreover, some Romance languages allow noun phrases consisting of a determiner plus a relative clause. Consider the Spanish example in (15) (Dryer 2004, 47).

(15)   el   [que pasa]
       the.M   [REL pass]
       'the one who is passing'

Additionally, rebooting seems to be marginally available also in the verbal domain, as shown by the examples in (16), where the Italian adverbial VN *squarciagola* has originated the verb *squarciagolare* (to scream, who can *shift back* into the nominal domain as in (16b)).

(16)   a. *Non avete sentito come ho squarciagolato Strada Facendo.*
           'You have not heard as I screamed *Strada Facendo*'
                                         [title of a pop song], retrieved from *Google.*
       b. *Non ci importa nulla dello squarciagolare di Al Bano…*
           'We do not care anything about the screaming of Al Bano'
             La Repubblica 08/12/2004, retrieved from *Enciclopedia Treccani On-line.*

Actually*, rebooting* can be also seen as a representationalist way (cf. Brody 2003; Manzini and Savoia 2007) of addressing the generalization argued for in Cinque (2012), namely the fact that nominal modifiers can be *silent* (i.e. present but unpronounced) only if

the NP and the extended projection of the NP below them are also silent[18]. Cinque (2012) basically argues that this empirical generalization follows in a derivational way from a condition on DP-internal movement (as suggested in Cinque 2005), to the effect that only constituents containing the (unmoved) NP are allowed to move. On the contrary, our idea resort to (the height) of Phrasal Spell-Out and does not involve movement (one of the problems of Cinque, 2005 is precisely to find clear motivations for DP-internal movement; cf. Steddy and Samek Lodovici 2011).

Our proposal is also reminiscent of Adger (2011)'s idea that extended projections are formed by self-merge, rather than 'canonical' external merge. David Adger precisely means that rather than functional materials being introduced as heads, an extended projection merges with itself, creating a new projection, the label of which is provided by a *labeling algorithm* (see also Svenonius 2012).

5. Idiomacy and Compositionality

We have seen that Phrasal Spell-out means that in the lexicon exponents are associated to trees. Applied to VN compounds, this idea is *prima facie* reminiscent of a lexicalist approach *à la* Halle (1973), where it is also allowed that the lexicon stores phrases or even whole sentences. Note that, 'in the lexicon', many other approaches allow non-morphological objects to be stored (see e.g. Di Sciullo and Williams 1987, and their notion of *listeme*). What is distinctive in the case of Phrasal Spell-out is that a single, morpho-phonologically undecomposable exponent, can correspond to a phrasal structure. This means that in a VN word like Italian *lavapiatti*, 'dishwasher' Phrasal Spell-out allows each one of the exponents (*lav-a-piatt-i*) to correspond to a phrasal structure. If *lav-a-piatt-i* is stored in the lexicon, it is not as a morpho-phonological unit, but as an idiom.

At this point, due to our *idiomatic* interpretation of VN compounds, we would expect a much less transparent relation between the constituents and the whole word.

Indeed, many VN words (cf. Italian *coprifuoco* or *beccamorto* and the adverbial VNs already discussed in section 1) are idiomatic in nature, as shown by the Italian examples in (17) (cf. also e.g. for Spanish, Jiménez Ríos 1999, 125-127):

(17)   cascamorto,   rubacuori,
       (lounge lizard, lit. *fall.dead*)   (seducer, lit. steal.heart)
       rompiscatole,   cacadubbi,
       (nuisance lit. *break.boxes*)   (ditherer, lit. *shit.doubts*)
       grattacielo,   strozzapreti…

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[18] Notice also that our idea differs from standard nanosyntactic assumptions. Phrasal Spell-Out in nanosyntax is a relation between exponents and structures, which means that lexicalisation happens once the derivation has been completed. As said, the rebooting mechanism is representationalist in nature (i.e. the mechanism has no memory of and is not affected by silent/empty categories lying below in a *derivationalist* model *à la* Cinque). A possible way to reconcile standard nanosyntax with the present proposal is possibly given in Starke (2011b) (retrieved *via* Caha and Pancheva 2012), where lexicalisation happens at each node without waiting for phases to be completed, and lexical entries can refer to other entries in the lexicon by means of *pointers*. But these technical details are clearly not crucial for the present discussion. Further notice that our proposal differs from 'orthodox' nanosyntax in another respect: rebooting is sensitive to the Specifier being lexicalised as a phrase and Starke (2004) actually proposes a syntactic model in which specifiers *do not* exist.

(skyscraper, lit. *scratch.sky*)   (type of pasta, lit. *throttle.priest*)

But many other Romance VN words (the majority of them) are compositional in nature: a *lavapiatti* is 'someone that washes dishes'. The relevant question - at this point - is: if VNs are structured as idioms (i.e. undecomposable units in the encyclopaedia) how do we get a compositional semantics?

The answer possibly lies in diachronic facts. According to Lloyd (1966, 1968), Romance VN words emerged from (idiomatic) nicknames, commonly lively and hilarious, and then expanded to other frames around 12th/13th century, when VNs started to appear as animals, plants, occupations, places, instruments, etc. (cf. also Rosemberg 2007; Progovac 2012).

As explicitly stated by Floricic (2008, 186), in anthroponymic VN compounds (from which according to Lloyd all other forms have originated)[19]:

> "The referent […] is independent from that of the constituent parts of the compound: nouns like Bevilacqua or Mangiapane do not refer to some kind of water or bread, nor do they refer to the activity of drinking and eating […]. The name has conventionalized as pure designation of a given entity […]. The nature of the entity in question, thus, cannot be predicted on the basis of the information conveyed by the elements of the compound: to quote Coseriu (1981, 5), the fact that V-N compounds pick up such or such object or such or such individual is not a matter of langue but a matter of antonomastic designation."

The properties stated in Floricic (2008) for anthroponymic VN words are clearly of idiomatic nature.

Hence, given the fact that the first VNs were commonly idioms, we can explain the extension to a compositional meaning by the mean of a process of *exaptation* in the sense of Lass (1990, 1997, 316-324), where *"exaptation [...] is the opportunistic co-optation of a feature whose origin is unrelated or only marginally related to its later use. In other words (loosely) a 'conceptual novelty' or 'invention"* (Lass 1990, 80). In our case, structures such as *exocentric* VN compound, that have been considered by Progovac and Locke (2009) and Progovac (2012), as 'syntactic fossils', originally used to designate idiomatic nicknames (in a *not* very productive fashion), have been recycled in the lexicon to (very productively) convey semantically transparent (i.e. compositional) structures (cf. also Jackendoff 1999, 2002 on the notion of *proto-syntactic fossil*). With the same structure and the same mechanism of Phrasal Spell-Out, *exaptated* (i.e. co-opted) compositional VN forms have strongly 'colonized' the lexicon.

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[19] Interestingly, many Italian anthroponymic VNs retain a determiner in their structure (e.g. *Bevilacqua, Taglialatela, Beccalossi*). This fact, according to the present proposal, can be a sign of the fact that in earlier stages of VN's development (we have seen that, diachronically, nicknames were the first instance of VN compounds in Romance) the functional material of this kind of 'lexicalized clauses' was not consistently erased. Further notice that VN compounds "*are found across languages, not only Indo-European (IE), but also non-IE, exhibiting striking parallelisms in form and imagery.*" (Progovac 2012, 50). A nickname-like origin of VN words in English has been explicitly argued for in Weekley (1917). VN compounds are present in Germanic Languages (cf. Ackema and Neeleman 2004), Slavic (cf. Progovac, 2012), but also in genetically unrelated languages such as Chinese or Tashelhit Berber (Progovac 2012, 56). Nevertheless, in such languages VN items are not as *hugely* productive as in Romance languages.

Thus, the great productivity of compositional VNs does not weaken our proposal, thanks to the diachronic facts introduced above.

Moreover, the ample use of neologisms and *hapax legomena* of the VN types, such the ones described by Ricca (2005) for newspaper corpora, which clearly resemble the structure of (reduced) relative clauses (e.g. *astensione salva-Prodi* 'Prodi-saving abstention'; *quel terzo posto acchiappa-Uefa* 'that Uefa-catching third place'; *colpo di testa fissa-risultato* 'result-securing header'), can be consider as evidence for a inner modifying nature of this kind of compounds.

Indeed, from a psycholinguistic viewpoint, as argued by Plag (2006, 542), hapax legomena:

> "are crucial for the determination of the productivity of a morphological process because in very large corpora hapaxes tend to be words that are unlikely to be familiar to the hearer or reader. Complex unknown words can be understood at least in those cases where an available word-formation rule allows the decomposition of the newly encountered word into its constituent morphemes and thus the computation of the meaning on the basis of the meaning of the parts. The word-formation rule in the mental lexicon guarantees that even complex words with extremely low frequency can be understood. Thus, with regard to productive processes, we expect large numbers of low frequency words and small numbers of high frequency words, with the former keeping the rule alive. In contrast, unproductive morphological categories will be characterized by a preponderance of words with rather high frequencies and by a small number of words with low frequencies."

6. Conclusions

In this paper, I have shown that an account based on the idea of Phrasal Spell-Out can elegantly account for some puzzles regarding VN compounds in Romance languages, interpreted here as lexicalized modifying clauses. I have also advanced the hypothesis of a *rebooting* mechanism in extended projections as an alternative to the postulation of *silent* lexical items to account for the ambiguous nature of VN words that can appear either as noun or adjectives/adverbials. With such an approach no *compounding rules* are involved and we do not need to resort to *categorial underpecification* to account for the 'VN facts'.

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