

The meaning of a noun converted into a verb. A semantic exploration on Italian

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This paper investigates a shifting phenomenon between word classes, namely the conversion of nouns into verbs, according to the theoretical framework of the Generative Lexicon.

The work focuses on Italian data. It is argued that when a conversion takes place, specific nominal coefficients affect the meaning of the resulting verbal lexeme. In particular, the Qualia Structure (which is part of the Generative Lexicon framed in Pustejovsky 1995, 1998a and b, 2001, 2003) seems to play a relevant role in derivational semantics, since the activation of a specific Quale correlates with a specific representation of the denominal verb. In turn, it is shown that the activation of a specific Quale largely depends on the semantic type the nominal belongs to.

The article also briefly discusses some semantic and syntactic features of the resulting verbal lexeme; it eventually focuses on the relationship between derivational semantics and Encyclopaedia, and on the tendency of the lexicon towards morphosemantic opacity.

1. Introduction

Denominal verbs obtained with a conversion are an interesting word class shifting phenomenon. Whilst morphosemantic properties of deverbal nouns and denominal verbs provided with derivational suffixes have been already pointed out (Gaeta 2002, 2004, Grossmann 2004a for Italian, *int. al.*)¹, the issue of how to describe the meaning of denominal verbs with no derivational morphemes, on the other hand, is still a matter of debate.

A pioneer classification of English denominal verbs is offered in Clark & Clark (1979). Although a great number of interesting attempts, there is not yet a satisfactory agreement on the lexico-semantic representation of these lexemes.²

In point of fact, *figliare* 'to generate a son' (< *figlio* 'son'), *astrologare* 'to practice astrology' (< *astrologo* 'astrologer'), *falconare* 'to train and to use falcons to hawk' (< *falcone* 'falcon'), show radically different and (apparently) unpredictable meanings. Notice that these verbs are simply formed by the nominal stem plus the verbal inflectional end-

ings, with no derivational suffix. In (1), a little sample is given from Italian, in which the nominal stem (henceforth, NS) is classed according to its referential domain:³

- (1) a. semantic type of NS: [animal]
falconare ‘to hawk’ < *falcone* ‘falcon’; *anatrare* ‘to produce the typical cry of a duck’ < *anatra* ‘duck’; *uccellare* ‘to snare birds’ < *uccello* ‘bird’; *civettare* ‘to flirt’ < *civetta* ‘little owl’
- b. semantic type of NS: [human being]
figliare ‘to generate a son’ < *figlio* ‘son’; *astrologare* ‘to practice astrology’ < *astrologo* ‘astrologer’; *monacare* ‘to put someone into a convent, to make her become a nun’ < *monaca* ‘nun’; *commissariare* ‘to put under a commissioner’ < *commissario* ‘commissioner’
- c. semantic type of NS: [food]
acetire ‘to turn to vinegar’ < *aceto* ‘vinegar’; *biscottare* ‘to toast’ < *biscotto* ‘biscuit’; *zuppare* ‘to dunk’ < *zuppa* ‘soup’

As the examples in (1) show, the derivational meanings of denominal verbs obtained through a conversion process are not fully predictable – at least, if compared to denominal suffixed verbs, in which the meaning of the suffix contributes the derivational meaning of the final outcome. It is not clear how to account for such diverging results, and whether there is a limit to the semantic variation of denominal converted verbs.

The matter has fascinated scholars of all theoretical persuasions. Clark & Clark (1979: 783) state that conversion verbs “have an indefinitely large number of potential senses, and their interpretation depends on the context, especially the co-operation of the speaker and listener.” According to Jespersen (1942: 93), “it is difficult to give a general definition of the sense-relation between substantives and de-substantival verbs. The verb may designate any action or state that bears a relation to the substantive in question”. Both Aronoff (1980) and Kelly (1988) argue for the need to detect some semantic regularities of these verbs; following Aronoff (1980), the meaning of the verb is limited only to an activity which has some connection with the noun. Kiparsky (1997) formulates the Canonical Use Constraint, whereby if an action is named after a thing, it involves a canonical use of the thing.

The question I address here precisely concerns what a noun converted into a verb means, or, to say it better, if and how its meaning ‘works’ in derivational processes. The attempt to define the term ‘meaning’ is largely beyond the scope of the present study; rather,

I shall adopt here a functional, intuitive concept of meaning as an active, compositional and contextual interplay of semantic templates and pragmatic knowledge.

My account stems from those approaches variously claiming a 'link' between nouns and converted verbs. In my view, this link does not simply ground on a pragmatic cooperation of speakers and listeners, and it does not completely come down to the extra-linguistic context – although the role of contextual knowledge is to be carefully considered in what follows, and hopefully clarified. In the spirit of Joh (2001) and Baeskow (2006), I aim to offer a formal account of the semantic entailments of a morphological process of conversion.

The semantic templates I shall deal with have been described by Pustejovsky (1995, 2010), and are commonly known as Qualia Structure. As for the pragmatic, extra-linguistic component of the meaning of a word, I shall refer to the debated notion of Encyclopaedia, aiming at partially re-shaping its scope by appealing to a cluster of hypothesis put forward in the philosophical literature on conceptual categorization.

The paper is organized as follows. Section 2 illustrates the most relevant lexical aspects of verbalizing processes. Section 3 relates some issues concerning the notion of zero-morpheme in derivational morphology. After a survey of the properties of the Qualia Structure, section 4 investigates the role it plays in the semantic output of converted verbs, as well as its relationship with the complex notion of Encyclopaedia. At this point, denominal verbs subclasses can be defined by virtue of the Qualia of their nominal stems. Section 5 investigates the correlation between the semantic type of the nominal stem, its Qualia Structure and the meaning of the resulting verbal lexeme. In the following section, the Lexical Representation of denominal converted verbs is taken into account according to the Generative Lexicon framework, with regard to the Eventive Structure, the Argument Structure and the Qualia Structure. In section 7, some examples of metaphorical meanings and polysemy of denominal converted verbs are discussed. Finally, section 8 summarizes the conclusions and indicates some further research.

2. Verbalizations from a lexico-semantic perspective

Italian has a productive verbalizing morphology, devoted to transforming a noun into a verb; however, a noun can also be converted into a verb just by acquiring verbal inflectional morphemes.⁴

Recently, Malchukov (2004: 86-100) has described the verbalizing process as a cline that leads from a noun to a denominal verb, with a gradual loss of nominal features and a progressive acquisition of verbal properties. A ‘weak’ verbalization (such as the nominal predicate *is my best friend* in (2a)) can still share some features with nouns, such as gender, number, possessor; on the contrary, a ‘heavy’ verbalization (such as the denominal conversion *to hammer* in (2b)) has no remaining nominal features, and morphosyntactically behaves as an underived verb:

- (2) a. John is my best friend
b. John hammered the nail

Interestingly, nominal features are lost according to a progressive, crosslinguistically valid order; once lost, nominal oppositions such as gender and number are neutralized. For instance, *figliare* (< *figlio* ‘son.M.SING.’) can equally mean ‘to generate a son’, ‘to generate a daughter’, ‘to generate one child’, and ‘to generate children’. In (3b), conversely, gender and number oppositions are still relevant:

- (3) a. Ha figliato
‘She generated a son/ a daughter/ children’
b. Ha avuto un figlio ≠ una figlia ≠ dei figli
‘She had a son ≠ a daughter ≠ children’

When converted into a verb, a noun loses its referential index, i.e., its possibility to function as the head of an anaphoric reference (Baker 2003: 23). In (4a) *piantone* (‘guard’) is a nominal predicate, and bears a referential index; in (4b) *piantone* is converted into *piantonare* (‘to guard’), and the anaphora to the NS is no longer acceptable:⁵

- (4) a. È un piantone_i, e gli piace esserlo_i
‘He is a guard, and he likes being one’
b. *Piantona_i i detenuti in ospedale, e gli piace esserlo_i
*‘He guards prisoners in hospital, and he likes being one’

After all, denominal verbs never introduce discourse referents (Harley 2008):

- (5) Mary chained the chair to the wall. *It was heavy. (Rimell 2012: 171)
(intended meaning: ‘the chain was heavy’)

A further important difference between ‘weak’ and ‘heavy’ verbalizations concerns their *Aktionsarten*. Nominal predicates commonly express a stative actionality; on the contrary, denominal zero-converted verbs are generally not stative.⁶ Compare (6a) and (6b): the former expresses a state, the latter an activity:⁷

- (6) a. È un astrologo
‘He is an astrologer’
b. Astrologa tutto il giorno
‘He practices astrology all day long’

According to Harley’s (1999, 2005) analysis, grounding on the syntactic notion of incorporation, the boundedness of the nominal stem affects the telicity of the denominal verb, in that a bounded root gives rise to a telic verb (*sella* ‘saddle’ > *sellare* ‘to saddle’ (7a); *figlio* ‘son’ > *figliare* ‘to give birth to a son’, ‘to foal’ (said of a horse) (7b)), whilst an unbounded nominal root can be converted into an atelic predicate (*profumo* ‘perfume’ > *profumare* ‘to perfume’ (7c); *zucchero* ‘sugar’ > *zuccherare* ‘to sugar’ (7d)), as shown by the results of the diagnostic test concerning the prepositional phrase FOR X TIME, which cannot occur with telic predicates:

- (7) a. Giovanni sellò il cavallo in cinque minuti/ *per cinque minuti
‘John saddled the horse in five minutes/ *for five minutes’
b. La cavalla figliò in cinque minuti/ *per cinque minuti
‘The mare foaled in five minutes/ *for five minutes’
c. La domestica profumò la biancheria in cinque minuti / per cinque minuti
‘The housemaid perfumed linen in five minutes / for five minutes’
d. Maria zuccherà il tè in cinque minuti / per cinque minuti
‘Mary sugars the tea in five minutes/ for five minutes’

Harley (1999, 2005) rightly points out that denominal verbs formed from bounded nominals are always telic, while denominal verbs coming from unbounded (i.e., mass) nominals can display both an atelic and a telic reading, depending on the interpretation of the direct object as a referential, definite argument. Nevertheless, she is aware that the same constraint does not hold for instrumental denominal verbs, which, although related to bounded nominal roots, license telic and atelic readings at the same time:

- (8) a. Giovanni martellò il metallo per cinque minuti/ in cinque minuti
‘John hammered the metal for five minutes / in five minutes’

In Harley's view, this inconsistency is explained by means of a different syntactic incorporation process giving rise to instrumental verbs, called "manner incorporation" (see Rimell 2012: 99-102 for detailed criticism on this point).⁸

To conclude, the conversion of a noun into a verb creates a (new) dynamic predicate (mainly an activity verb or an accomplishment), and neutralizes nominal inherent features, such as gender and number. In what follows, I shall attempt to propose a more fine-grained semantic analysis of denominal verbs.

3. A morphological sketch of conversion

In this section, I briefly explore the process so far referred to as conversion. More precisely, conversion must be distinguished from 'zero-derivation'⁹ at least in languages such as Italian (Bisetto 1992, Lehmann 2008, Scalise & Bisetto 2008: 197-199; evidence against zero-derivation in German is offered in Lieber 1981).

Firstly, zero-derivation (i.e., a derivation with no overt suffix: Jespersen 1942, Adams 1973) does not only entail a word class shifting ($[\text{zuccher}o]_N > [\text{zuccher}are]_V$), but also leads to a more or less regular and predictable semantic change. Secondly, unlike conversion, zero-derivation is presumed to take place in Italian by means of a covert suffix provided with a thematic vowel (Scalise 1983, Thornton 1990): this vowel is assumed to be necessary to account for the change in lexical category, and to assign the new lexeme to a specific inflectional class. According to Scalise's (1983) model, *cementare* ('to cement' < *cemento* 'cement'), is thought to be derived through a 'derivational rule' (9a), an 'inflectional rule' (9b), and a 'vowel deleting rule' (9c):

- (9) lexical input: *cemento*
a. $[\text{cemento}]_N + \emptyset\text{-a}]_V$
b. $[\text{cemento}]_N + \emptyset\text{-a}] + \text{re}]_V$
c. \emptyset
lexical output: *cementare*

Apart from the controversial debate on this topic,¹⁰ the potential risk of adopting the zero-morpheme lies in its extensibility to all derivational processes: in spite of some adjustments proposed in literature,¹¹ the notion of zero-derivation is not accepted in all theoretical frames. The question of whether the supposed zero-suffix has the strength and the features of a real derivational morpheme arises, since it does not belong to the whole paradigm of the resulting lexeme, which is simply given an

inflectional marker (Crocco Galèas 1991: 75). Surely, it does not seem to contribute to the meaning of the resulting lexeme: that is, the representation in (9) does not shed light on the derivational semantics of the final output. As Plag (1999: 220) states, there is a “growing consensus in the linguistic literature that the variety of meanings that can be expressed by zero-affixation is so large that there should be no specific meaning attached to the process of zero-affixation at all”.

This is the main reason why the hypothesis of a zero-suffix is not further explored in this paper. Henceforth, I shall simply refer to ‘zero-derivation’ (and to ‘zero-suffixed verbs’), as a synonym of ‘conversion’ (and, respectively, of ‘converted verbs’), simply to mean that the verbs I deal with have no overt derivational suffixes at all.

4. A Semantic analysis of Italian zero-suffixed denominal verbs

Differently from suffixed verbs, no *Wortbildungsbedeutung* (i.e., no Word-formation meaning, contributed by a derivational or inflectional affix: Uluchanov 1979, Barz 1982, Dressler 2005, int. al.) guides the interpretation of converted denominal verbs, which are morphotactically and morphosemantically opaque. For instance, the derivational suffix *-ific(are)* regularly contributes to the meaning of the denominal verb as a whole, with a predictable semantic value corresponding to ‘to make, to create the referent of the NS’, as in *fruttificare* (‘to fructify’, < *frutto* ‘fruit’), *esemplificare* (‘to exemplify’, < *esempio* ‘example’), *nidificare* (‘to nest’, *nido* < ‘nest’), and so on.¹²

Although a number of zero-suffixed verbs show unpredictable/contextual meanings (as we shall see below), I hope to show in what follows that it is nevertheless possible to find out some regular semantic patterns, and to describe them according to a model of lexical representation.

In this respect, the notion of “evaluative domain” of a noun (as expressed in Aronoff 2007) hits the mark, but needs a rigorous formalization: “The meaning of the innovative verb (i.e., of a converted verb whose meaning is unexpected: my note) always comprises what I call an evaluative domain of the noun’s denotation (essentially a dimension along which the denotation of the noun can be evaluated; a knife is good if it cuts well, a mother is good if she does well what mothers do; a club is good for clubbing, etc.)”.

My starting point is the hypothesis fruitfully explored by Joh (2001) and Baeskow (2006), namely that a verbalization obtained with a conversion activates some nominal coefficients, so that the

interpretation of the resulting verbal lexeme is oriented by sub-parts of the meaning of the noun it comes from. The theoretical frame adopted here is that of the Generative Lexicon (henceforth, GL), more precisely the theory of Qualia Structure (Pustejovsky 1995).

4.1. *The corpus*

The corpus I used is made up of 530 denominal zero-suffixed verbs, gathered from Italian dictionaries.¹³

Semantic and diachronic tests have been adopted to distinguish NSs from derived words, following the criteria firstly pointed out by Marchand (1963, 1964), and discussed in Iacobini (2000):

- (10) a. Semantic Test: the derived word is that whose meaning can be understood only if referring to the other one (ex.: *bottle* > *to bottle*);
b. Diachronic Test: the derived word is the one diachronically subsequent to the other (ex.: *scalpo* ‘scalp’ XVI century > *scalpare* ‘to scalp’ XX century).¹⁴

I have removed the occurrences in which phonetic phenomena have obscured the relationship between the NS and the derived verb. For instance, *cozzare* (‘to clash’) and the noun *coccia* (‘shell’ and, metaphorically, ‘head’) share the same etymological root, although nowadays the denominal derivation is no longer perceived by the Italian speakers. In the same way, I have examined *astrologare* (‘to practice astrology’), but I have not considered the aphaeretic form *strologare* (‘to puzzle over something’).

4.2. *The Qualia Structure*

In GL, the semantic templates called Qualia Structures explain very common co-compositional effects, i.e., sense effects resting on syntagmatic co-occurrences of words.¹⁵ They give a representation of the predicative force of a word, i.e. of its possibility to co-occur with other nominals and to modulate its meaning depending on syntagmatic constraints. Furthermore, Qualia are involved in sense-creation phenomena, since they ‘suggest’ the interpretation of words in context and contribute to coercive effects (Pustejovsky 1995: 87).¹⁶

On the basis of Pustejovsky (1995, 2001), Qualia are identified as follows:

- (8) a. CONSTITUTIVE *QUALE*: what N is made of, how it is composed, which are its constitutive parts and what is the relation between these parts and the whole;
b. FORMAL *QUALE*: what N is (with reference to a superordinate/hype-

- ronym level): i.e., the basic category that distinguishes the object within a larger domain;
- c. TELIC *QUALE*: what is the function, the purpose, or the typical activity of N;
 - d. AGENTIVE *QUALE*: factors involved in N's origin or coming into being.

They can be defined as “expressions with well-defined types and relational structures” (Pustejovsky 1995: 78). For instance, examples in (11) and (12) show which *Quale* of the complex type¹⁷ *novel* is actively involved in contex-dependent sense modulation:

- (11) novel [physic_object]
 - a. I have torn page 20 of the novel to bits
 - CONSTITUTIVE Q, since pages are constitutive parts of a novel, as well as the cover, the binding, etc.
 - b. This novel weights a lot, don't put it in your backpack
 - FORMAL Q, since a novel is a physical object with physical properties, like weight, dimensions, colours, etc.
 - c. The novel is going to press
 - AGENTIVE Q, since a novel – intended as the semantic type [physic_object] – is physically produced by printing, binding, etc.
- (12) novel [information]
 - a. I don't like happy-ending novels
 - CONSTITUTIVE Q, since the ending of a novel is a part of its informative content.
 - b. Could you summarize this novel?
 - FORMAL Q, since one can summarize an information, i.e., precisely what a novel – intended as instantiating the semantic type [information] – is.
 - c. A novel for the summer time
 - TELIC Q, in that the novel is intended to be read during the summer time.
 - d. Harry Potter's authoress churns out a novel a year
 - AGENTIVE Q, since the contextual use of novel focuses here on its coming into being, i.e., on the activity of writing.

As does *novel*, the word *scnt* also shows logical polysemy, since it instantiates both the semantic types [physic_object] and [chemical_substance]. In (13), examples of different *Qualia* activation are taken into account accordingly:¹⁸

- (13) scent [physic_ object]
a. A bottle of scent with a strange cork → CONSTITUTIVE
b. Scents are on the make-up shelves → FORMAL
c. A French scent → AGENTIVE
- (14) scent [chemical_ substance]
a. A scent made up of lavender → CONSTITUTIVE
b. A delicious scent → TELIC
c. A long lasting scent → FORMAL
d. The linen gave off a delicate scent → AGENTIVE

It is crucial to stress that the TELIC and AGENTIVE roles do not refer respectively to the notions of telicity or agentivity as meant either within the theories of verbal actionality, or in the various frameworks adopting semantic roles. On the contrary, there is no simple, one-to-one mapping between theta roles and Qualia, and between *Aktionsart* and Qualia (Pustejovsky 1995: 99). So, the AGENTIVE Quale of *hammer* is activated every time something is predicated about the factors involved into the hammer's coming into existence; for instance, in (15):

- (15) hammer
A good Austrian hammer → TELIC and AGENTIVE

In this example, two Qualia roles are activated: the TELIC Quale (a hammer is good or not with regard to its typical function) and the AGENTIVE one (a hammer is Austrian because it has been manufactured in Austria).

Now, it can be argued that in *martellare* ('to hammer'), the TELIC Quale of the noun *martello* is activated; I assume, more generally, that the meaning of a converted denominal verb is Qualia-oriented. As Joh (2001: 219) clearly states, "the basic information for the new sense of denominal verbs is not from an infinite set of generic knowledge but from the structure itself in which the verbs are defined".

Some other examples will clarify this claim. Let us consider for instance the denominal, zero-suffixed verbs *romanzare* ('to fictionalize, to novelize' < *romanzo* 'novel'): the semantic type [information] of the NS *romanzo* is exploited, and its AGENTIVE Quale is activated:

- (16) si è appassionato alla biografia di Michelangelo e l'ha romanzata
'he has become keen on Michelangelo's biography and fictionalized it'

In *profumare* ('to perfume' < *profumo* 'perfume'), both in its transitive (17a) and intransitive version (17b), the semantic type [chemi-

cal_substance] of the NS is exploited, and its AGENTIVE Quale is activated, since in both cases it is predicated about the appearance, the coming into being of the scent (which is given by someone to linen, or spontaneously sent out: anyway, it was not there before):

- (17) a. profumare la biancheria
 'to perfume linen'
 b. la biancheria profuma
 'the linen smells good'

Not every lexical item bears a complete range of Qualia roles: the meaning of some items seems to go together with just one or two Qualia. For instance, no TELIC Quale can be found for *zebra* ('zebra'):

- (18) zebra
 a. a zebra crossing
 → CONSTITUTIVE
 b. the zebra belongs to the Equidae family
 → FORMAL
 c. a zebra born in captivity
 → AGENTIVE

By the way, the lack of TELIC Quale for *zebra* is not accidental, as natural types (i.e. nominals referring to referents not created on purpose) generally lack it. I shall dwell on it later (see §5).

In *zebrare* ('to mark with coloured alternating stripes') the CONSTITUTIVE Quale of *zebra* is activated, since it can be paraphrased 'to give something one of the constitutive part of a zebra, the colour of its mantle':

- (19) un tappeto zebrato
 'a zebraed carpet'

Denominal verbs such as *zebrare* are mostly used in the past-participle adjectival form: *salmonato* 'having salmon-coloured flesh' (< *salmon* 'salmon'), *marsalato* 'treated to have the bouquet and flavour of Marsala wine' (< *Marsala*), *leopardato* 'leopardskin' (< *leopardo* 'leopard'), *risottato* 'cooked as it were a risotto, and thus given its stiffness' (< *risotto*) etc. I shall return to this point below.

In what follows, I shall examine whether an adequate analysis of Italian zero-suffixed denominal verbs can be carried out according to the theory of Qualia Structure. The main point to consider is whether denominal verbs tend to cluster in a predictable way according to the activated Qualia of their NSs.

Since Qualia are semantic templates referring to the compositional meaning of a word, they must be strictly regarded as a language-internal device. However, one is often forced to acknowledge a link between the compositional semantics of a word and the whole of extra-linguistic knowledge speakers tend to associate to a lexical entry.

Let us consider *falconare* ('to train and then to use falcons to hawk'). Here, *falcon* is lexified as an instrument with a telic purpose. A simple, extra-linguistic theory about what a predator does is somehow involved in the meaning of the derived lexeme. Differently, its hyperonym *uccello* ('bird') is conceptualized as a prey in *uccellare* ('to snare birds'). Once again, one is forced to admit that a shared, encyclopaedic knowledge about what birds are, and what people are used to do with them, has been incorporated into the verb *uccellare*.

Both *uccellare* and *falconare* are somehow filled with "common sense metaphysics" (in Asher & Pustejovsky's terms), that is, with a sum of ontological statements speakers share about common objects in the world. As the authors point out, "there is a connection between common sense metaphysics and the lexicon but it's not a direct one" (Asher & Pustejovsky 2006). Semantic types are one of the ways common sense metaphysics enters the lexicon.¹⁹

The following section presents a brief overview on a philosophical assumption proposed in the literature, dealing with the nature of human concepts as small, multi-layered theories about real objects in the world. This assumption, which should be widely acknowledged in the linguistic literature, may in fact be adopted to account for – at least partially – the complex relationship between lexicon and Encyclopaedia.

4.3. Interim digression. The relationship between Lexicon and Encyclopaedia

As Kiparsky (1997: 5) summarizes, "conceptual knowledge is essential to the formation of lexical meaning". Indeed, the interpretation of denominal verbs is not an exception, as it presupposes a high degree of world-knowledge (Baeskow 2006: 206, 212). This crucial (although, at least partially, vague) point was firstly recognized in Clark & Clark's (1979) seminal study, then becoming part of the shared background on denominal verbs (see also Dirven 1999 and Minsky 1982 on the role of speaker's expectations in knowledge representation).

Linguists usually refer to Encyclopaedia as the sum of knowledge speakers associate with the concept expressed by a lexical entry. There has been over the years much theoretical debate on how the

lexicon is filled with Encyclopaedia, and where the boundary between them lies (Haiman 1980, Cruse 1988, Ježek 2005: 56-57 int. al.). It seems clear that lexicon and Encyclopaedia must be distinguished, since extra-linguistic knowledge is not strictly speaking part of the grammar nor of the lexicon (Bierwisch 1997), but it is equally obvious that they somehow interact.

During the two final decades of the last century, some philosophers of mind and scholars in cognitive sciences explored the possibility for human concepts to be spontaneous theories about the functioning and the form of objects in the world (Murphy & Medin 1985, Gelman & Markman 1987, Gopnik & Wellmann 1994, Gopnik & Meltzoff 1997; see also Laurence & Margolis 1999 and Lalumera 2009, int. al., for a survey of the debate). Every concept – they assumed – is a little, coherent theory, and it consistently integrates with all the other knowledge we possess. For instance, my concept of *falcon* is part of a larger zoological theory, and is a little zoological theory in itself, even if very simple, and not scientific. It is worth stressing that this model of conceptualization does not appeal to any ontological explanation about the objects we know; it simply postulates that knowledge is stocked *as if* it were part of a larger, multi-layered theory. It is also worth noting that the so-called ‘theory-theory’ (in Gopnik & Wellman’s 1994 terms) is nothing but one of the proposals more recently put forward in the long-standing debate on human categorization.

For instance, the theory-theory competes with an illustrious, deep-rooted view whereby concepts are definitions, i.e., ordered lists of necessary and sufficient properties fully defining a conceptual content. In spite of its ancient formulation (the theory of concepts as definitions can be firstly traced back to Aristotle: Lalumera 2009: 29-38), scholars still speculate whether the content of a conceptual definition should be seen as an implicational hierarchy of lower-level concepts, or as perceptual primitives, or, rather, as semantic information stocked in the form of computational symbols (the latter position is notably defended in Fodor 1998, Fodor 2004, and Fodor, Garret, Walker & Parkes 2004; see also Laurence & Margolis 1999: 135).

The idea that definitions (even if implicit, or purely metaphysical: see Lalumera 2009: 55-67 and references therein) are the only criteria available to set, learn and use concepts has also been challenged by other contending views on human categorization: for instance, the bulk of (somewhat diverging) theories sharing Wittgenstein’s intuition on family resemblance, incidentally supported by experimental

evidence of prototypical effects (Posner & Keele 1968, Rosch 1973, Rosch & Mervis 1975, Hampton 2000, Murphy 2002: 24).

In their turn, both definition-based theories and prototype-centred views have been criticized by the conceptual-role theory (Peacocke 2000, 2005), refusing a one-to-one correspondence between a concept and its concrete representations (many different representations of the same concept may be affected by prototypical effects, but not the concept itself), as well as by the constellation of the ‘embodied’ theories (Violi 2003, Lalumera 2009: 119-132).

An in-depth discussion on the alternative views on concepts is largely beyond the scope of this paper. Here, it should be noted that there is no consensus among scholars about the way concepts are acquired and internally built; it is also highly debatable whether they are homogeneous or not (i.e., whether all concepts have an uniform format or not).

To return to the main topic of this work, not every theoretical view on concepts posits a link between conceptual knowledge and words – although many of them do not prevent from conceiving it. Consequently, not every theory concerning the nature, the acquisition and the ontological status of human concepts is equally relevant to linguists. Concepts and words are definitely not the same; however, a theory on concepts (i.e., a comprehensive proposal on how human mind ‘handle’ the knowledge it possesses) can enlighten the relationship between words and Encyclopedia, and, finally, the (mysterious) way whereby words refer to conceptual contents. In my view, the theory-theory has a remarkable linguistic implication, which – as far as I know – has not been fully emphasized yet.

In the spirit of this view, since the very first months of our life, knowledge is stocked in the shape of ontological statements, causal laws, and goal detecting; in particular, causal principles and telic purposes are the properties we seem to prefer in order to categorize objects, events and relations among them (Gopnik & Wellmann 1992, Gopnik, Melzhof & Kuhl 1999). Adopting this perspective, cause-effect relationship is to be recognized as crucial, insofar as we tend to prefer it even to visible, physical features when acquiring new concepts (Gelman 2003, Rottman & Ahn 2009).

Interestingly, Qualia Structure has the ‘format’ of a small theory itself, with general ratings (expressed by the FORMAL and CONSTITUTIVE Qualia), and causal and final principles (expressed by the AGENTIVE and the TELIC ones):

Table 1.

SIMPLE THEORIES ABOUT THE WORLD	QUALIA
Ontological statements	FORMAL and CONSTITUTIVE
Causal laws	AGENTIVE
Goal detecting	TELIC

The linguistic assumption on Qualia Structure seems therefore to fit in the cognitive model of concepts as micro-theories, even though they were first formulated in different theoretical fields and carried out for different purposes, without reciprocal influence.²⁰ It is evident however that, from a certain point of view, Qualia are a link between Encyclopaedia and words, since they ‘map’ knowledge – in the shape of a simple theory – on the lexicon.

So far, I have briefly sketched a comparison between two originally unrelated models of word meaning and conceptualization, the Qualia Structure, as conceived inside the linguistic framework of GL, and the theory-theory, dealing with concepts. In spite of some patent differences between them, they both agree in considering linguistic and conceptual knowledge as the result of compositional effects, largely due to the interplay of internal features and experience-based stimuli, and in describing both words and concepts as contextually-based functional items.

In the next section, I shall return to the subject of linguistic evidence, showing to what extent the Qualia Structure of the NS takes part in the ‘building’ of derivational meaning.

4.4 Defining denominal verbs subclasses

Contemporary research on verbal semantics focuses, among other topics, on the most useful grain-sized formula to define verb subclasses, and to represent their meaning. In their pioneering research on the English language, Clark & Clark proposed five subclasses of converted predicates, plus a ‘miscellaneous’, not cohesive, subclass (Clark & Clark 1979):²¹

These subclasses are probably the most representative ones for English, but they do not capture all the Italian denominal zero-suffixed verbs; for instance, *biografare* ‘biographize’ (< *biografia* ‘biography’), *odiare* ‘to hate’ (< *odio* ‘hate’), *spinare* ‘to bone’ (< *spina* ‘bone’) cannot be classed accordingly. To give an example, according to Clark & Clark’s classification, a privative verb (in Plag’s 1999 terms) like *spinare* would be classed among locatum verbs, thus shadowing any relevant difference.²² Moreover, following Clark & Clark’s classification, it is impossible to catch – and to explic-

Table 2.

CLARK & CLARK'S SUBCLASS	PARAPHRASE	CLARK & CLARK'S EXAMPLES
1. Locatum verbs	'to put N in O as a canonical use of N' (Kiparsky 1997:9)	<i>to bridge the stream,</i> <i>to roof the house</i>
2. Agent and Experiencer verbs	'do the act that one would normally expect N to do' (Rimell 2012: 18)	<i>to doctor the victim,</i> <i>to skipper the boat</i>
3. Locations and duration verbs	'to put N in O as a canonical use of O' (Kiparsky 1997:9)	<i>to kennel the dog,</i> <i>to shelve the books</i>
4. Goal and source verbs	'to cause it to come about that something is N' (Rimell 2012: 18)	<i>to powder the aspirin,</i> <i>to cream the butter</i>
5. Instrument verbs	'to use N for its typical purpose'	<i>to hammer the nail,</i> <i>to floor-sweeper the carpet</i>
6. Miscellaneous verbs		<i>to lunch, to picnic, to lip,</i> <i>to wing</i>

itly represent – the difference between *granagliare* ‘to granulate’ (< *granaglie* ‘grain’) and *zebrare* (see above, §4.2). Both verbs would belong to subclass 4 of Table 2; however, in *granagliare* an AGENTIVE Quale is activated (when granulating something, grains that were not there before are contextually taken into existence: *granagliare* incorporates the sense ‘to create grains’); in *zebrare* (‘to sign with coloured alternating stripes’), obviously, it is not the case (no zebra comes out at the end of the process, but rather a zebra-pattern - which is quite different).

GL offers some useful guidelines to improve the semantic description of denominal converted verbs. In Table 3, a Qualia-based classification of Italian zero-suffixed denominal verbs is proposed,²³ including the specification of the activated Quale (Q) of the NS, and some Italian examples:²⁴

Let us briefly discuss the Qualia-based classification proposed in Table 3.

Firstly, Qualia-based classification accounts for some very fine-grained intuitions speakers have about verbal meanings. For instance, the differences between *piastrellare* (‘to tile’) and *scheggiare* (‘to splinter’/ ‘to chip’) must be traced back to the activated Quale of the NS. In the process signified by *piastrellare* (and the *piastrellare*-type verbs) not a single *piastrella* (‘tile’) comes into being; rather, the

Table 3.

Q OF THE NS	EXAMPLES
TELIC	<p><i>martellare</i> ‘to hammer’ < <i>martello</i> ‘hammer’, <i>spazzolare</i> ‘to brush’ < <i>spazzola</i> ‘brush’, <i>telefonare</i> ‘to telephone’ < <i>telefono</i> ‘phone’</p> <p><i>astrologare</i> ‘to practice astrology’ < <i>astrologo</i> ‘astrologer’, <i>capitanare</i> ‘to captain’ < <i>capitano</i> ‘captain’, <i>ficcanasare</i> ‘to nose around’ < <i>ficcanaso</i> ‘nosy parker’</p> <p><i>piastrellare</i> ‘to tile’ < <i>piastrella</i> ‘tile’, <i>stuccare</i> ‘to fill with putty’ < <i>stucco</i> ‘putty’, <i>mattonare</i> ‘to brick’ < <i>matton</i> ‘brick’</p>
AGENTIVE	<p><i>biografare</i> ‘to biographize’ < <i>biografia</i> ‘biography’, <i>fotocopiare</i> ‘to photocopy’ < <i>fotocopia</i> ‘photocopy’, <i>novellare</i> ‘to tell stories’ < <i>novella</i> ‘story’</p> <p><i>acetire</i> ‘to turn into vinegar’ < <i>aceto</i> ‘vinegar’, <i>fiorire</i> ‘to flower’ < <i>fiore</i> ‘flower’, <i>granire</i> ‘to seed’ < <i>grano</i> ‘grain’</p> <p><i>allertare</i> ‘to alert’ < <i>allerta</i> ‘alert’, <i>impressionare</i> ‘to shock’ < <i>impressione</i> ‘shock’, <i>meravigliare</i> ‘to amaze’ < <i>meraviglia</i> ‘wonder’, <i>necessitare</i> ‘to need’ < <i>necessità</i> ‘need’, <i>odiare</i> ‘to hate’ < <i>odio</i> ‘hate’</p> <p><i>scheggiare</i> ‘to splinter/to chip’ < <i>scheggia</i> ‘splinter/chip’, <i>frantumare</i> ‘to crush’ < <i>frantume</i> ‘fragment’, <i>granagliare</i> ‘to granulate’ < <i>granaglia</i> ‘seed’, <i>quadrettare</i> ‘to square off’ < <i>quadretto</i> ‘small square’</p>
FORMAL	<p><i>cestinare</i> ‘to throw away’ < <i>cestino</i> ‘basket’, <i>scaffalare</i> ‘to put onto a shelf’ < <i>scaffale</i> ‘shelf’, <i>stallare</i> ‘to stable’ < <i>stalla</i> ‘stable’</p> <p><i>cimare</i> ‘to trim’ < <i>cima</i> ‘top’, <i>scorzare</i> ‘to peel’ < <i>scorza</i> ‘peel’, <i>spinare</i> ‘to bone’ < <i>spina</i> ‘bone’</p> <p><i>idrogenare</i> ‘to hydrogenate’ < <i>idrogeno</i> ‘hydrogen’ <i>argentare</i> ‘to silver’ < <i>argento</i> ‘silver’, <i>ossigenare</i> ‘to oxygenate’ < <i>ossigeno</i> ‘oxygen’</p>
CONSTITUTIVE	<p><i>capponare</i> ‘to caponize’ < <i>cappone</i> ‘capon’, <i>tigrare</i> ‘to make something stripy’ < <i>tigre</i> ‘tiger’, <i>zebrare</i> ‘to make something zebraed’ < <i>zebra</i> ‘zebra’</p>

activated TELIC Quale predicates something about its typical use. In *scheggiare*, and the like, on the contrary, nothing can be said about the telic use of a *scheggia* (‘splinter’/‘chip’); it predicates something about its appearance (when I splinter something, at the end of the process splinters come out that were not there before).

Similarly, it is the Quale of the NS that distinguishes the *piastrellare*-type verbs (with the TELIC Quale of the NS) from the *idrogenare*-

type subclass, in which the FORMAL Quale of the NS influences the meaning of the final output: while the TELIC Quale of the noun *piastrella* can be thought of as something like ‘to cover’, ‘to be put on a surface’, the TELIC Quale of the stem *idrogeno* ‘hydrogen’ (> *idrogenare* ‘to hydrogenate’) is not ‘to be put in/ on something’. Presumably, *idrogeno* has no TELIC Quale at all; rather, it is a natural substance (FORMAL Quale). Remember what we previously noticed about *zebra*: not every lexical item bears a complete range of Qualia roles.²⁵ The difference in the activated Qualia between *piastrellare* and *argentare* lies in the ontological types the nominals instantiate. I shall expand on this issue below.

The fact that both in *argentare* and *cestinare* (‘to throw away by putting into a basket’) the FORMAL Quale of the NS is activated could maybe seem counterintuitive at first sight. Notice, however, that the FORMAL Quale is simply concerned with the kind of objects the referent of a noun belongs to. Moreover, the activation of the same Quale of the NS does not imply that the resulting verbal lexemes have the same or a comparable meaning, neither in a narrow nor in a broad sense. Rather, it accounts for a more subtle evidence concerning adjuncts, as we shall see later (§6.2).

Being Qualia activation also contextually-based (as Baeskow 2006 recalls), and the interpretation of denominal verbs influenced in its turn by the syntactic environment (Kaschak & Glenberg 2000), nothing prevents from assuming that in some constructions two Qualia might be activated in context: the first one is associated with the NS; the second one with the nominal functioning as Direct Object (O), as shown in (20) and exemplified in Table 4:

- (20) a. *piastrellare il bagno*
 ‘to tile the bathroom’
 → TELIC Q of *piastrella* ‘tile’ (> *piastrellare* ‘to tile’) (‘to cover, to be put on a surface’)
 → CONSTITUTIVE Q of *bagno* (O) ‘bathroom’ (a bathroom is a place, constitutively built up of surfaces, as walls)
- b. *scheggiare il vetro*
 ‘to chip the glass’
 → AGENTIVE Q of *scheggia* ‘splinter/chip’ (> *scheggiare* ‘to splinter/to chip’) (‘to be produced, to appear out of a mass’)
 → CONSTITUTIVE Q of *vetro* (O) ‘glass’ (glass is a physical object, with an external surface which can be slivered)
- c. *argentare lo specchio*
 ‘to silver the mirror’
 → FORMAL Q of *argento* ‘silver’ (> *argentare* ‘to silver’) (‘silver is a

natural substance with specific organoleptic properties')
 → CONSTITUTIVE Q of *specchio* (O) 'mirror' (a mirror has a surface, a frame, and other constitutive parts which can be covered with silver)

- d. *spinare il pesce*
 'to bone the fish'
 → FORMAL Q of *spina* 'bone' (> *spinare* 'to bone') ('a bone is a physical object')
 → CONSTITUTIVE Q of *pesce* (O) 'fish' (a fish is made of some constitutive parts, among which its bone)

Direct Objects of verbs in (20a-d) are intrinsically affected by the verbal process in their constitutive parts, as it happens in *quadrare il foglio* ('to square a sheet off'), *frantumare lo specchio* ('to crush the mirror down'), *argentare la cornice* ('to silver the frame'). That is the reason why the activated Quale of O is always the CONSTITUTIVE one.

Double Qualia activation (in the following example, involving the CONSTITUTIVE and FORMAL Qualia) can also be said to correlate with a lexical semantic relation and with a syntactic constraint:

- (21) a. *scorzare il limone*
 'to peel the lemon'
 b. *scheggiare il vetro*
 'to chip the glass'

For (21a) and (21b), one can assume a metonymical relation between the verb and O, i.e. between, for instance, *peel* and *lemon*, *chip* and *glass*. Moreover, a syntactic constraint involves transitivity. Transitive verbs can be found in all subclasses of denominal verbs.²⁶

Interestingly, however, verbs with a double Qualia activation show a mandatory transitive construction, since their complex Eventive Structure incorporates a resulting state affecting the O argument (Levin & Rappaport Hovav 2005: 112, Cennamo 2003):

Table 4.

DENOMINAL VERB	EVENTIVE STRUCTURE	AKTIONSART
<i>piastrellare</i> <i>frantumare</i> <i>argentare</i> <i>spinare</i> <i>salmonare</i>	two sub-events (e1: activity e2: resulting state)	accomplishment

It is no coincidence that verbs in Table 4 are all accomplishments: they represent a dynamic process with a telic conclusion, intrinsically affecting O. For instance, in *scorzare* ('to peel') the resulting state is inherent to the CONSTITUTIVE role of the argument surfacing as O, namely to be without the peel (see §6.6).

An overview on quantitative data suggests a varied range in Qualia derivational productivity:

Table 5.

Q OF NS	% OF THE CORPUS
TELIC	54
AGENTIVE	28, 5
FORMAL, CONSTITUTIVE	12, 8

The most frequently activated Quale is the TELIC one.²⁷ It turns out to play the most productive role in derivational semantics, as happens in co-compositional processes (Saint-Dizier 2001).

The AGENTIVE Quale of the NS is activated in 27,5% of the verbs. It is worth recalling that, in most cases, we spontaneously categorize objects by means of causal and final explanations (§4.3).

Finally, the lowest percentages pertain to FORMAL and CONSTITUTIVE Qualia. In general, when dealing with co-compositional sense effects, FORMAL and CONSTITUTIVE Qualia mostly tend to be interpreted as stative predicates, since they concern general statements about what an object is and what it is made of (Pustejovsky 1995: 79). It is worth noting that when the CONSTITUTIVE Quale of the NS is activated, the resulting verb tends to be used in the past participle-adjectival form (*salmonato*, *marsalato*, *zebrato*, etc.), since adjectives are functionally close to stative predicates:

(22) Una trota salmonata 'A salmon trout'

CONSTITUTIVE Q of *salmon* 'salmon' (> *salmonare* 'to salmon'; past participle: *salmonato*) → (when the process denoted by *salmonare* takes place, something is given the colour of a salmon, that is, one of its constitutive properties)

CONSTITUTIVE Q of *trota* 'trout' → (a trout is affected by the process denoted by *salmonare* in one of its constitutive properties, its colour)

5. Correlation between Semantic Types and Qualia in Derivational Semantics

Further generalizations can be made by assuming that Qualia are activated according to the semantic type of the NS, i.e. the ontological type it belongs to.

In GL, nominals can be classified as NATURAL, ARTIFACTUAL, and COMPLEX TYPES (Pustejovsky 2001 and 2006, Asher & Pustejovsky 2006, Pustejovsky & Ježek 2008; see, however, Asher 2011 for a structured criticism to previous and current theories about semantic types). In this paragraph, I will explore the interplay between the semantic type a noun belongs to and the Qualia activation occurring when converted into a verb.

NATURAL TYPES (such as *pascolo* ‘pasture’, *ossigeno* ‘oxygen’, *tigre* ‘tiger’) are atomic concepts which correlate with the CONSTITUTIVE and the FORMAL Qualia. Naturals are infrequently chosen as stems for denominal verbs. As a matter of fact, it is uncommon to conceptualize a natural object as an event, unless we focus on its appearance, or on its purpose. Although Natural types generally lack the TELIC Quale, Pustejovsky & Ježek (2008) claim that “even if Naturals do not have a complex Qualia Structure [...], some of them may exhibit inherent conventional attributes and natural telic aspects which may be exploited in semantic composition”.²⁸

I argue, following Baeskow (2006), that conventional attributes could be exploited in semantic derivation too.²⁹ For instance, in *fiorire* ‘to bloom’ (< *fiore* ‘flower’,) and *fogliare* ‘to send out leaves’ (< *foglia* ‘leave’), *figliare* ‘to generate a son’ (< *figlio* ‘son’), *fruttare* ‘to bear fruit’ (< *frutto* ‘fruit’) in spite of the Natural types of their NSs, an AGENTIVE conventional attribute is activated.

Conventional attributes of Natural types are a good example of the interplay between Encyclopaedia and lexicon: although *falcone* (‘falcon’) and *uccello* (‘bird’) are ontologically similar Natural types, their conventional attributes differ with respect to the purpose a falcon and a bird can be used for: a falcon is a predator and that is the conventional, TELIC attribute activated in *falconare* (‘to hawk’); differently, a bird is (generically) a prey (*uccellare* means ‘to snare birds’).

Grouping together NSs belonging to the same semantic kind leads to relevant generalizations. Baeskow (2006: 227) points out that in English the NSs of denominal converted verbs of removal regularly denote Natural kinds. The same holds true within my Italian corpus, as shown by a few examples below:

- (23) *cimare* ‘to trim’ < *cima* ‘edge’; *contraffilare* ‘to trim the outer edge of a sole’ < *contraffilo* ‘sole outer edge’; *resinare* ‘to extract resin from’ < *resina* ‘resin’; *schiumare* ‘to foam’ < *schiuma* ‘foam’; *scalpare* ‘to scalp’ < *scalpo* ‘scalp’; *scorzare* ‘to peel’ < *scorza* ‘peel’; *spinare* ‘to bone’ < *spina* ‘bone’

Since the referents of the NSs are related with the meronymical relation ‘part-of’ to other Natural Kinds, generally surfacing as O arguments (*cimare il cespuglio* ‘to trim the hedge’, *schiumare il brodo* ‘to foam the broth’, *spinare un pesce* ‘to bone a fish’, and so on), the resulting meaning of the verb is not ‘provide O with N’, but rather ‘remove N from O’. Notice in passing that the CONSTITUTIVE Quale of the Object is activated.

COMPLEX TYPES offer a composition of two types (Pustejovsky 1995: 90 ff., Pustejovsky 2001: 93). As mentioned above for *novel*, logical polysemy typically arises in complex types (or DOT TYPES). In the same way, *pranzo* (‘lunch’) can both refer to the semantic type [event] (24a) and to [food] (24b):

- (24) a. *pranzo* (‘lunch’) [event]
durante il pranzo non mangiò nulla
‘during lunch he didn’t eat anything’
b. *pranzo* (‘lunch’) [food]
il pranzo era ottimo
‘the lunch was very good’

Interestingly, a verb derived from a complex type (or ‘dot type’) realizes a ‘dot exploitation’, which consists in exploiting only one aspect of a complex type and in predicating over it (Pustejovsky 2006, Pustejovsky & Ježek 2008: 192). In *pranzare*, only one type of the NS (here: the type [food]) is exploited, while the other type (here: [event]) is left apart; the TELIC Quale of the meaning ‘food’ is activated, so that (25a) is fully acceptable, while (25b) is not:³⁰

- (25) a. *pranzammo ottimamente*
‘we had a very good lunch’
b. **mentre pranzava non mangiò nulla*
*‘while having lunch, he/she didn’t eat anything’

The same constraint just seen for *pranzare* (i.e., exploitation of a single semantic type from a dotted one) seems to hold for other denominal verbs derived from complex type nominals. For instance, *profumare* (‘to perfume’) exploits the [chemical_substance] type, and

not the [physic_object] one (see above, the examples (13) and (14) above), and therefore *profumare l'aria* can only mean 'to perfume the air', and not, say, 'to put the air in a bottle of scent'. Similarly, *novellare* 'to write short novels' (< *novella* 'short novel') exploits the [information] type of the NS, and not the [physic_object] one (see the examples (11) and (12) above), so that *novellare tutto il giorno* can only mean 'to write short novels all day long', and not 'to print', or 'to bind short novels', or the like. One can assume that when a complex type is turned into a verb, a dot exploitation takes place, whereby only one type can be exploited, and one Quale from the Qualia Structure of this type is activated accordingly. What differs from a canonical dot exploitation is that co-predication referring to two different semantic types is allowed with a nominal (as *libro* in (26)), but turns out to be unacceptable with a denominal verb, as testified by (25b):

- (26) a. Una libro tragico e voluminoso
'A tragic and bulky book'

To account for this inconsistency some further research is definitely required.³¹ In my view, one can suppose that, even when related, nouns and verbs behave differently from a co-compositional point of view, in that the meaning of a simple noun is radically contextually-modulated, while the meaning of a NS converted into a verb is a *fortiori* fixed once for all.

ARTIFACTUAL TYPES typically denote objects that do not exist in nature, have been created for some purpose, bear a strong cultural connotation, or exist in a telic relation to something else, and combine a Natural type with the TELIC or the AGENTIVE Qualia. The notion of Artifact is indeed at the centre of a fascinating philosophical debate concerning human categorization, culture-based conceptual representations and intentionality (Bloom 1996, 2007, Barrett et al. 2008, int. al.). The great majority of the verbs of my corpus comes from nominals belonging to this type. In *martellare* ('to hammer' < *martello* 'hammer'), *scaffalare* ('to shelf' < *scaffale* 'shelf'), *bendare* ('to bandage' < *benda* 'bandage'), *merlettare* ('to ornament with lace' < *merletto* 'lace'), *cullare* ('to cradle' < *culla* 'cradle'), *spazzolare* ('to brush' < *spazzola* 'brush'), *revolverare* ('to shoot with a revolver' < *revolver* 'revolver'), *trivellare* ('to drill' < *trivella* 'drill') and the like, the purposes, the main activity or the goal of the nominals are in turn alternative interpretations of the TELIC Quale, depending on the nature of the referents and the encyclopaedic knowledge one spontaneously associates with them; in *fotocopiare* ('to photocopy' < *fotocopia* 'photocopy'), *laminare* ('to roll' < *lamina*

‘thin sheet’), *rombare* (‘to roar’ < *rombo* ‘roar’), *piroettare* (‘to spin’ < *piroetta* ‘spin’) and the like, the verbal lexeme refers to the appearance (i.e., the coming into being or creation) of the entity denoted by the NS, thus resulting from the activation of its AGENTIVE Quale.

Finally, it is worth noting that when a NS referring to a human being is converted into a verb, the resulting predicate tends to denote an activity concerned with permanent properties, and not with a transitional state of affairs. Therefore, *monacarsi* means ‘to become a nun’ (and not, say, ‘to behave as a nun temporarily’), *astrologare* means ‘to practice astrology’, *piantonare* means ‘to do the job of a guard’, and so on. Following Carlson (1977a) and Pustejovsky (1995: 229 ff.), one can assume that individual-level nominals (like *astrologo* ‘astrologer’, *capitano* ‘captain’, or *monaca* ‘nun’, i.e., nominals denoting a long-lasting role, which “are interpreted independently of the activity performed at the time of reference because they have generic character”, Baeskow 2006: 225) seem to be preferred in noun-verb conversion processes, while stage-level nominals (like *pedone* ‘pedestrian’, *passaggero* ‘passenger’ or *cliente* ‘customer’: **pedonare*, **passaggerare*, **clientare*), on the contrary, tend to be banned.

In the framework adopted in this study, the TELIC Quale must be precisely interpreted as the most typical and stable function, purpose, or activity of the NS. Recall that in the theory-theory as well human categorization is assumed to be guided by the recognition of a typical, telic (not occasional) usage, function or goal (§4.3; see also Rimell 2012: 168).

6. Correlation between Qualia Structure and Lexical Representation

This section investigates the interplay between the activation of Qualia of the NSs and the overall lexical representation of the resulting verbal lexeme. In GL, the meaning of a word is represented as a complex, stratified structure resulting from several informational levels (Pustejovsky 1995). I shall account here for the Eventive Structure, the Argument Structure and the Qualia Structure of three denominal converted verbs.

6.1 The Eventive structure

In GL, the Eventive Structure (EVENTSTR) deals with the kind of event meant by a predicate, consisting of one (e_1) or two sub-events (e_1 and e_2), depending on the nature of activity, accomplishment or achievement of the predicate.³²

6.2 The Argument Structure

The Argument Structure (ARGSTR) specifies the arguments of a predicate: their nature of true, default or shadow arguments and the semantic types by which they are spelled out. For the present discussion, beside true syntactic arguments (represented by x and y), it is worth focusing on the behaviour of the SHADOW ARGUMENT (z), i.e. of the argument incorporated into the lexical meaning.³³ A shadow argument can be overtly expressed only if specified in a restrictive sense (Pustejovsky 1995: 62-67, Ježek 2005: 113, Kiparsky 1997, Harley & Haugen 2007), i.e., if it contributes – for instance, within a prepositional phrase (PP) – additional information. When dealing with a denominal verb, it is easily predictable that the NS, being incorporated as a shadow argument, cannot but surface with further specification. Henceforth, I shall refer to this principle as the ‘non-redundancy constraint’.³⁴

- (27) a. ?Zuccherare il tè con lo zucchero
?‘To sugar the tea with sugar’
b. Zuccherare il tè con lo zucchero di canna
‘To sugar the tea with brown sugar’

For instance, *pascolo* (‘pasture’) acts as a shadow argument in *pascolare* (‘to graze’), so that (28b) makes sense, while (28a) does not, as it violates the non-redundancy constraint formulated above:

- (28) a. ? Il pastore ha pascolato il gregge in un pascolo
?‘The shepherd grazed the flock in a pasture’
b. Il pastore ha pascolato il gregge in un pascolo di montagna
‘The shepherd grazed the flock in a mountain pasture’

What counts more, as firstly noted by Kiparsky (1982, 1997), “some locatum verbs and location verbs retain the full force of the corresponding noun, others compromise it in one way or another” (Kiparsky 1997: 12; for a definition of locatum and location verbs, see Table 2). One can *box a gift in a big box*, but cannot **box a gift in a bag*. On the contrary, one can *shelve a book on the windowsill* (as well as *on a thin shelve*), but not, let’s say, *in a bag*. Finally, one can certainly *dump* or *ditch* something in a place which does “not have to be a dump or ditch”, and does not “need (...) even to be dump-like or ditch-like in any physical respect whatever” (Kiparsky 1997: 15). The three ensuing possibilities (i.e., literal involvement of the NS (29a); attenuation of the nominal meaning, whereby some aspects of the noun are still retained (29b); complete bleaching of the root (29c))

are represented by the aid of Italian examples below (see also data in Labelle 2000 and Baeskow 2006: 212-213):

- (29) a. *Cestinare il foglio nel cassetto
*‘To throw away (by putting into a basket) the paper into the drawer’
b. Martellare sul muro con il pugno (*con una corda)
‘To hammer the wall with one’s fist (*with a rope)’
c. Depositare qualcosa in cantina, per strada, sul pavimento, in acqua
‘To drop off something in the cellar, in the road, on the floor, into the water’

Arguing against Hale & Keyser’s (1993, 1997) syntactic approach of incorporation, Kiparsky (1997) suggests that verbs like *box* and *shelve* come from real NSs, whilst verbs of the *ditch/dump* type, in which the literal meaning of the noun is completely bleached, derive from uncategorized roots (see also McCawley 1971 and Myers 1984 for similar remarks, Arad 2005 and Don 2005 for comparable diagnostic tests and conclusions).

However, it is worth noting that no other verb (apart from *depositare* ‘to drop off’ < *deposito* ‘storage’) can be found in my corpus fitting with Kiparsky’s *ditch/dump* type, i.e., a verb allowing any kind of nominals in argument and adjunct position, regardless of its meaning. All Italian denominal verbs of my corpus behave like *box* or *shelve*:

- (30) a. *Chiodare una suola con dei chiodi
*‘To nail a sole with nails’
b. Chiodare una suola con dei chiodi di ferro
‘To nail a sole with iron nails’
c. Chiodare una suola con dei ganci
‘To nail a sole with hooks’
d. *Chiodare la suola con delle corde
*‘To nail a sole with ropes’
(31) a. *Foderare il divano con una fodera
*‘To cover the sofa with a cover’
b. Foderare il divano con una fodera nuova
‘To cover the sofa with a new cover’
c. Foderare la teglia di prosciutto
‘To cover the pie dish with ham’
d. *Foderare l’ambiente con il profumo
*‘To cover the room with perfume’

Examples (30a) and (31a) are infelicitous, since they violate the non-redundancy constraint, otherwise fulfilled in (30b) and (31b). Examples (30c) and (31c) are, by contrast, fully acceptable, as long as the nominals in object or adjunct position share a “manner of use” (Harley & Haugen 2007) or function, or form (Dowd 2010) with the NS. Sentences like ((30d) and (31d)) are ruled out exactly because of the meaning of the adjuncts, which departs from that of the NSs, as for their use, their function, their form.

The difference seems to be ultimately a pragmatic one (Harley & Haugen 2007, Rimell 2012: 176). Along these lines, there is no room for the two-way contrast described by Kiparsky, which turns out to be spurious. In what follows, I suggest that the different behavior of the *cestinare*-type verbs vs. *martellare*-type ones might be better accounted for by virtue of Qualia activation of the NSs.

The following examples are grouped together according to the activated Quale of the NSs. In (32) the FORMAL Quale of the NS is activated; in (33) the CONSTITUTIVE Quale; in (34) the AGENTIVE Quale; in (35), finally, the TELIC one.

Denominal converted verbs in which the FORMAL, the CONSTITUTIVE or the AGENTIVE Qualia of the NSs are activated retain the full force of the corresponding noun; any specification (other than PPs with the shadow argument, observing the non-redundancy constraint) is therefore infelicitous:

- (32) a. *Cestinare il foglio nel cassetto
*‘To throw away (by putting into a basket) the paper into the drawer’
b. *Idrogenare il composto con l’azoto
*‘To hydrogenate the compound with nitrogen’
c. *Spinare il pane
*‘To bone the bread’
d. *Schidionare la carne con un bicchiere
*‘To skewer the meat with a glass’
e. *Condottare il petrolio a spalla
*‘To pipe oil on one’s back’
d. *Grigliare le verdure a vapore
*‘To grill vegetables steamed’
- (33) a. *Una crema marsalata con il caffè
*‘A custard treated with coffee to have the bouquet and flavour of Marsala wine’
b. *Un tessuto tigrato a tinta unita
*‘A self-coloured striped tissue’

- (34) a. *Frantumare un oggetto in grossi pezzi
*‘To crush something down in large pieces’
b. *Mugugnare emettendo con un forte grido
*‘To grumble with a loud scream’
c. *Piroettare da immobile
*‘To pirouette being stuck’
d. *Asteriscare con una virgola
*‘To star with a comma’

By contrast, when the TELIC Quale of the NS is activated, some further specifications are acceptable:

- (35) a. Scaffalare i libri sul davanzale della finestra
‘To shelve the books on the windowsill’
b. Pettinarsi con le dita
‘To comb one’s hair with one’s fingers’
c. Salare il cibo con la soia
‘To salt food with the soy sauce’
d. Oliare i meccanismi con un lubrificante
‘To oil the devices with a lubricant’

In some cases, the activated TELIC Quale pertains to technical procedures, requiring dedicated instruments. Therefore, PPs adding further specification are ruled out:

- (36) *Faxare un documento con il videoregistratore
*‘To fax a file with the tape recorder’

Denominal verbs of creation, i.e., verbs whose shadow arguments refer to the resultant objects of a creation process, provide additional evidence in support of my claim.³⁵ Notice that, in Italian, denominal verbs of creation do not even allow to be specified by their shadow arguments, as they refer to something which is created during the process denoted by the predicate:

- (37) a. *Ho fotocopiato l’immagine con una fotocopia nuova
*‘I photocopied the image with a new photocopy’
b. *Ho litografato il quadro con una litografia nuova
*‘I have litographed the picture with a new lithograph’

The evidence so far discussed leads to a noteworthy generalization: differently from the AGENTIVE, CONSTITUTIVE and FORMAL Qualia, when the TELIC Quale of the NS is activated the resulting verbal

lexeme can be further specified by a PP in which the shadow argument (or “incorporated noun”, in Hale & Keyser’s 1993, 1997 terms) does not (necessarily) occur. From a cognitive point of view, it is easily arguable that many things can be used for the same purpose (TELIC Quale), but not so many things do have the same constitutive parts (i.e, the same CONSTITUTIVE Quale), are created (or spontaneously come out) exactly in the same way (AGENTIVE Quale), or, finally, share precisely the same formal properties (FORMAL Quale). A nominal denoting a place typically has its FORMAL Quale activated when converted into a verb; this might explain why *locatum* and location verbs of my corpus resist to specification (35a-d).³⁶

To sum up, the contrast between the *cestinare*-type verbs, which do not allow any substitution, and the *martellare*-type ones, which on the contrary do, does not lie in the contrast between noun-derived vs. uncategorized root-derived verbs. I hope to have shown that Qualia can be considered responsible for such a contrast.

6.3 The Qualia Structure

In GL, every lexical item – as well as denominal verbal lexemes – has got its own Qualia Structure (QUALIA) (Pustejovsky 1995: 186-187).

The question we face is how the meaning of a NS (and, more precisely, its activated Quale) interacts with the lexical representation of the denominal verb it is converted into. In (38) the lexical representation of three denominal converted verbs is given; (38a) and (38b) are derived from Natural and Artifactual types (namely *pascolo* and *martello*) and refer to activities; the verb in (38c) (*scorzare*, ‘to peel’, from *scorza*) is an accomplishment, showing a double Qualia activation (with regard to the NS and to O).

(38) a. *pascolare*³⁷

EVENTSTR =	$e_1 = \text{activity}$
ARGSTR =	ARG (1) = x : animate ARG (2) = y : animate (s)- ARG (3) = z : <i>pascolo</i>
QUALIA =	AGENTIVE = to graze_act (e_1, x, y) FORMAL = animate (e_1, x) FORMAL = animate (e_1, y) FORMAL = place (e_1, z)

b. martellare

EVENTSTR =	e1= activity
ARGSTR =	ARG (1)= x: animate ARG (2) = y: physic_object (s)- ARG (3) = z: hammer
QUALIA =	AGENTIVE = to hammer_act (e ₁ , x, y) FORMAL = physic_object (e ₁ , y) CONSTITUTIVE = mass/ surface(e ₁ , y) TELIC = to be used to beat (e ₁ , z)

c. scorzare³⁸

EVENTSTR =	e ₁ = activity e ₂ = resulting state RESTR = e ₁ < e ₂
ARGSTR =	ARG (1)= x: human being ARG (2) = y: physic_object (s)- ARG (3) = z: peel
QUALIA =	AGENTIVE= to peel_act (e ₁ , x, y) FORMAL = to be without (e ₂ , y, z) CONSTITUTIVE = part_of (e ₂ , y, z)

A future cross-linguistic inquiry could clarify the interplay between the Qualia Structure of the NS and the lexical representation of the resulting verbal lexeme more in detail. Anyhow, this is a crucial point. According to the data in (38), one might suppose that the NS is regularly incorporated into the Argument Structure as a shadow argument, and that the Quale of the NS systematically appears as a Qualia role of the resulting verbal lexeme. To put it in a different way, when a noun is converted into a verb, its meaning actively works at the semantics-syntax interface.

To sum up, Qualia roles do not only determine co-compositional effects; they also represent a device in derivational semantics, useful to convey the meaning of a noun into a verb. This is evident when derived words are not given any morphological clue, as it happens in zero-derivation.

7. *When the Lexicon goes its own way: Metaphors and Polisemy*

The hypothesis firstly investigated by Joh (2001) and Baeskow (2006), and further supported in this work, yields convincing results; nevertheless, one is also forced to admit that some denominal verbs cannot be described by the model of Qualia Structure. For some denominal zero-suffixed predicates, new meanings actually arise by virtue of contextual/pragmatic interpretations and metaphorical shifts, which obscure the relationship between NS, Qualia Structure and the derived verb.

Denominal zero-suffixed verbs are cross-linguistically liable to such semantic idiosyncrasy. As a matter of fact, idiosyncratic changes and lexifications typically belong to derivational processes and, less specifically, to word formation rules. More generally, a morphologically opaque sign can easily undergo polysemy and lexification (Dressler 1985, 1987, Gaeta 1999, 2002: 199-201, int. al). Since conversion is not an iconic morphological technique, a denominal verb (with no overt suffix) is closer to a simple word than to a derived one (Crocco-Galèas 1991: 81). Therefore, it behaves like a sign belonging to the lexical, more than to the morphological component of language. Hence, a denominal verb frequently displays context-based meanings (“contextuals”, in Aronoff 1980’s terms), as well as metaphorical ones. They are, to varying degrees, unpredictable.³⁹ In such cases, Qualia are no longer a useful diagnostic tool (see, for a different position, Baeskow 2006: 232-233).

In my corpus, unpredictable/contextual meanings are shown, for instance, by:

- (39) *ciabattare* ‘to shuffle’ < *ciabatta* ‘slipper’; *ciuffare* ‘to seize one’s tuft of hair’ < *ciuffo* ‘tuft’; *guazzare* ‘to take a horse into the dew, so that it can freshen up’ < *guazza* ‘dew’; *tallonare* ‘to follow at the heels of someone’ < *tallone* ‘heel’.⁴⁰

Metaphorical meanings belong, for instance, to:

- (40) *cicalare* ‘to gossip’ < *cicala* ‘cicada’; *civettare* ‘to flirt’ < *civetta* ‘little owl’; *francobollare* ‘to follow closely’ < *francobollo* ‘stamp’; *grondare* ‘to drip’ < *gronda* ‘roof-gutter’; *lumacare* ‘to make something slowly’ < *lumaca* ‘snail’; *palpebrare* ‘to flash intermittently’ < *palpebra* ‘eyelid’.

Contextual-based and metaphorical verbs represent around 4.7% of my corpus (see above Table 5).⁴¹

Finally, polisemy is largely attested among denominal underived verbs. It is an instance of inherent polysemy: zero-suffixed items often

have more than one meaning, as in *scaffalare* ‘to put something onto a shelf’/ ‘to fit with shelves’ < *scaffale* ‘shelf’ (Kiparsky 1997: 10). Interestingly, denominal verbs often show a radical kind of polysemy, called “enationsemy” (Basile 1996) consisting in the development of two opposite meanings, such as ‘produce’ and ‘remove’ (41), or ‘take’ and ‘give’ (42) (see also Buck 1997):

- (41) *schiumare* ‘to produce the foam’/‘to remove the foam’ < *schiuma* ‘foam’
- a. Un sapone che non schiuma
‘A soap which doesn’t lather’
 - b. Schiumare il brodo
‘To skim the broth’
- (42) *lattare* ‘to take the milk’/ ‘to give the milk’ < *latte* ‘milk’
- a. Quel Greco che le Muse lattar più ch’altri mai (Dante, *Pg.* XXII, 101-102)
‘That Greek whom Muses nursed more than anyone else’
 - b. Nelle braccia lor crebbi e lattai (Boccaccio, *Comm. Ninf. Fior.*, XIV)
‘In their arms I grew up and suckled’

Moreover, zero-suffixed verbs show a relative polisemy, for they tend to be more polysemic than those verbs obtained from the same NS with an overt suffix, as shown by the following couples (verbs in (a) display the derivative suffix *-eggi-*; verbs in (b) are denominal converted verbs):

- (43) V < *verga* ‘rod’
- a. *vergheggiare* ‘to beat with a rod’
 - b. *vergare* ‘to beat with a rod’, ‘to rule’, ‘to handwrite’
- (44) V < *pennello* ‘brush’
- a. *pennelleggiare* ‘to brush’
 - b. *pennellare* ‘to brush’, ‘to describe something properly, though rapidly’, ‘to perform a sport action precisely’
- (45) V < *stocco* ‘rapier’
- a. *stoccheggiare* ‘to hit with a jab’
 - b. *stoccare* ‘to hit with a jab’, ‘to make a sarcastic remark’

8. Conclusions

Transforming a noun into a verb is a complex cognitive operation. As Hopper and Thompson (1985: 177) state, “a “verbalization” does not name an “entity taken as an event”, but rather [...] names

an event, associated with some entities”. When this association takes place, several semantic adjustments are needed.

In this paper, I have tested the possibility for Qualia to be a pattern of sense activation in derivational semantics, according to the semantic type the NS belongs to. A Qualia-based classification of denominal non-suffixed verbs has been put forward for Italian. At the same time, I have shown that the NS behaves as a shadow argument of the resulting denominal verb, and that the activated Quale of the stem is incorporated into the Qualia Structure of the output lexeme. On the whole, Qualia appear a good theoretical model to represent the interface between lexicon, Encyclopaedia and conceptual system.

Further research could definitely improve the semantic analysis of denominal verbs. It would be interesting to find out whether the spontaneous co-compositional behaviour of a NS used as simple noun – with regard to its Qualia Structure – is mirrored when converted into a verb; one might suppose that, for instance, the co-compositional behaviour of the noun *martello* activates its TELIC Quale more frequently than any other.⁴²

It is crucial to remark that my analysis based on Qualia Structure could be extended to suffixed denominal verbs. However, in this case the Qualia Structure of the NS would be just one of the contributors to the verbal meaning, the other one being the derivational meaning (*Wortbildungsbedeutung*) of the suffix; on the contrary, for denominal zero-suffixed verbs, Qualia are the only footbridge between the noun and the resulting verb in the verbalizing process.

To conclude, the correlation between Qualia Structure and semantic types acts as a transparency-preserving device. But metaphorical shifts, contextual-based meanings and polysemy are always at work in denominal verbs, which are morphosemantically opaque. In spite of the compelling results in contemporary research on lexical semantics, a reliable lexical theory on derivational semantics cannot ignore the spontaneous drift of words towards opacity, that is, the never-ending swinging of the lexicon between its descriptive resources and its radical vocation to arbitrariness.

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Notes

¹ Some very productive Italian deverbal suffixes, in use to create nominal nouns, are *-mento*, *-zione*, *-ata*, *-ata*, *-aggio* (Gaeta 2004). Italian also displays deverbal nouns without derivational suffix (Thornton 2004b). Suffixed denominal verbs can be obtained with the suffixes *-eggiare*, *-izzare*, *-icare* (Grossmann 2004a). Since the resulting verbs are in this case suffixed lexemes, they are not included in the present study.

² See Marchand (1969: 361-373), Cannon (1985), Karius (1985), Buck (1993), Pavese (1994), Balteiro (2007), Nagano (2008), García Velasco (2009) *int. al.*, about English denominal verbs. Many theory-internal studies have been devoted to treat denominal verbs from a syntactic point of view, as Hale & Keyser (1993, 1997, 2002) and Don (2005). The seminal work of Kiparsky (1997) has greatly influenced the subsequent research on the semantics of zero-converted verbs, although his conclusions have sometimes been rejected. See, *int. al.*, Arad (2003), Harley (2005) and (2008), Harley & Haugen (2007), Aksan (2004). A first, remarkable attempt to apply the framework of the Generative Lexicon to the semantic representation of denominal verbs with no derivational suffixes has been carried out by Joh (2001) and Baeskow (2006). Finally, a recent, insightful contribution is offered in Rimell (2012), where also a detailed survey of previous literature can be found. For Italian, see especially Grossmann (2004b). See also Iacobini (2005) for denominal conversion from abstract *nomina actionis*.

³ In this paper, I shall not address the question of the relative frequency of the items taken into account: some of them (for instance *fogliare*, *scorzare*, *acetire*, among others) belong to more or less formal and/or archaic register of the language. In any case, they are documented in the dictionaries I consulted, and this is what counts for the sake of the present study.

⁴ It is worth noting that, on the other side, Italian nominalizing strategies are more pervasive and productive than the verbalizing ones. This asymmetry reflects a general typological trend: nominalizing devices tend to be more extended, or at least as extended as the verbalizing ones (Hopper & Thompson 1984, 1985; Malchukov 2004).

⁵ Following Baker (2003: 165), it is worth stressing that no syntactic node can license at the same time a subject (as verbs do), and a referential index (as nouns do), since nouns and verbs are mutually exclusive categories. The nominal root fails to introduce a referent, in that no Determiner Phrase functional structure is incorporated in the denominal verb (Harley 2008).

⁶ Many languages fit in this restriction (Baker 2003: 187). For instance, in Tukang Besi (a Malayo-Polinesian language) the verbal form of a nounish word like *ha'o* 'hammer' cannot mean 'to be a hammer', but only 'to use a hammer' (Donohue 1999: 77-82). In Italian, the stative meanings are generally expressed by underived verbs (like *possedere*, 'to own') and by suffixed verbs (like *verdeggiare*, 'to be green') (see Schwarze 1995 and Barbato & Necker 2006 for a diachronic study). The results of the scrutiny of my corpus largely confirm this trend, being the vast majority of the denominal zero-derived verbs I examined dynamic predicates. Only five (out of 530) verbs show a stative Aktionsart, namely *odiare* 'to hate' (< *odio* 'hate'), *necessitare* 'to need' (< *necessità* 'need'), *letiziare* 'to rejoice' (< *letizia* 'joy': an archaic verb), *schifare* 'to be disgusted' (< *schifo* 'disgust') and *invidiare* 'to envy' (< *invidia* 'envy'). Notice that they all derive from abstract nouns.

⁷ For the intricate interplay between the semantics of the nominal stem and the ensuing telicity of the resulting activity predicate, see Aksan (2004).

⁸ Here, I confine myself to notice that *astrologare* 'to practice astrology', *bighellonare* 'to dowdler', *civettare* 'to flirt' (and so forth) all come from bounded nominal stems and are not instrumental verbs; however, they are atelic activity predicates.

⁹ The term *zero-derivation* was firstly proposed by Marchand (1962).

¹⁰ The crux of the matter is that Italian – differently from English, where the notion of zero-derivation was firstly applied – has a stem-based morphology, rather than a word-based one (different positions on conversion and zero-derivation can be found in Thornton 1990, Crocco-Galeas 1991, Bisetto 1992, Thornton 2004a, int. al.). Moreover, if the zero-suffix incorporates a thematic vowel, one should explain why *two* different results are actually licensed: the greatest part of derived verbs belong to the first inflectional *-(a)re* class (the most productive one: Dressler & Thornton 1991), but also verbs belonging to the *-(i)re* class can be obtained via conversion (notably in the past centuries). Halle & Marantz (1993, 1994), Don (1997), Farrell (2001), Arad (2003, 2005) support a different view, claiming that derivation is always root-based, and that roots are unspecified in the lexicon for grammatical categories. Incorporation theory has been defended by Hale & Keyser (1993), Mateu (2001), Harley (2005), Haugen (2009) int. al. This theory posits that the nominal element originates in an argument position and then undergoes a syntactic operation allowing it to fill in for a null verb. Very recently, Rimell (2012) has put forward that nominal roots in English denominal converted verbs do not originate in argument position, but are rather interpreted as predicates of events. In this work, I shall not dwell on these syntactic issues; I shall adopt a category-based account, whereby denominal verbs come from nouns, and not from unspecified roots.

¹¹ For instance, the "overt analogue" criterion (Sanders 1988). According to this criterion, one can assume that a zero-sign is involved in a derivational process only if there is at least another overt analogue sign, with a phonological signifier, which has the same function with an identical derivational meaning.

¹² Things are more complicated, since the value of the *Wortbildungsbedeutung* is not always so easy to represent explicitly. However, being the *Wortbildungsbedeutung* the semantic component of a linguistic sign resulting from a derivational process, it is certainly absent in a conversion process, where there is no derivational morpheme.

¹³ Dictionary-based works on denominal verbs are Cannon (1985) and Davies (2004). The dictionaries I used are listed in the References. A very rich amount of data is collected in Grossmann (2004a and b). I have also regularly checked the data with the ItWac corpus (Baroni & Kilgariff 2006; Kilgariff, Rychly, Smrž & Tugwell 2007), in order to specify the meaning of some neologisms, or to grasp the most frequent morphosyntactic behaviour of an item. Many of the examples quoted in this paper are taken from the ItWac corpus.

¹⁴ In Iacobini's (2000) view, the diachronic criterion is of little or no heuristic value at all. However, with regard to the pair *scalpo* > *scalpare* and to others showing such a large diachronic gap, this test seems revealing enough, at least as a clue, to postulate the direction of the derivational process.

¹⁵ Co-composition is a device "generating new non-lexicalized senses for the words in composition" (Pustejovsky 1996: 61; see also Pustejovsky 1998a).

¹⁶ The literature on this topic is very extensive. See, among others, Pustejovsky & Boguraev (1993), Bouillon (1997) for the role played by Qualia in co-compositional effects in [noun + adjective] contexts.

¹⁷ In GL, a 'complex type' (or 'dot type') is an inherently polysemic type: it has a symmetric internal structure consisting of two (or more) semantic types, represented in square brackets (Pustejovsky 1995: 118, Pustejovsky *to appear*.)

¹⁸ In the following examples, I omit any explanation, and only show the activated Qualia in each sentence. The examples are extracted from the ItWac corpus.

¹⁹ More precisely, in GL a lexical item's ability to define a semantic type or to cluster multiple senses is defined as Lexical Conceptual Paradigm (LCP). LCP also characterizes a lexical item as a meta-entry.

²⁰ Actually, the model of Qualia Structure is partially inspired by Moravcsik's (1975, 1981, 1990) interpretation of Aristotelian *aitia*.

²¹ Here, Clark & Clark's classes are provided with paraphrases quoted from subsequent literature. Notice that a paraphrase is only an approximation and does not capture the full meaning of all the verbs in the class. With respect to Kiparky's paraphrases, I change *x* and *y* into N and O respectively.

²² It is worth noting that if one adopted the zero-morpheme theoretical frame, a verb of removal as *spinare* would be analysed as derived through a zero-prefix with a privative meaning (Baeskov 2006: 208 and references therein).

²³ An anonymous referee brought to my attention that some of the verbs of my corpus are not derived from simple nouns, but from compounds, as *ficcanasare* 'to nose around' < *ficcanaso* 'nosy parker' < *ficcare* + *naso*, or unified fixed sequences, as *allertare* 'to alert' < *allerta* 'alert' < *all'erta*. This does not invalidate the claims of this paper, as the NS (*ficcanaso*, *giravolta*, *allerta*) are in use on their own as nouns. From a synchronic point of view, verbs such as *giravoltare* are therefore genuinely denominal verbs.

²⁴ Needless to say, the results must be intended as referring only to Italian verbs, and not to their English translations.

²⁵ The FORMAL role, however, seems to be always present in the Qualia Structure of a lexical item.

²⁶ The great majority of the verbs of my corpus (around 68 %) are transitive. See Davies (2004) for statical data concerning the transitivity feature in English denominal verbs.

²⁷ Notice that the interpretation of the TELIC Quale fits Kiparsky's (1997) Canonical Use Constraint (see §1).

²⁸ As the authors precise, it is not completely clear if conventional attributes are external to Qualia Structure or if they are part of it (Pustejovsky & Ježek 2008: 205). Nonetheless, they behave as Qualia in co-composition phenomena. Natural types with a conventional TELIC Quale are referred to as functional types in Pustejovsky (2001). In Pustejovsky's (2003) terms, a conventional telic attribute is called "imposed telic".

²⁹ For instance, according to Baeskov (2006), in *to milk the coffee* the imposed (or conventional) TELIC Quale of the NS *milk* is exploited.

³⁰ For Rimell (2012: 97-98), verbs like *lunch* and *dinner* refer "to the meal as a ritualized social activity, not to the object of consumption". Therefore, the NSs *lunch* and *dinner* would not play the role of incremental themes, i.e., undergoer

arguments of verbs of creation and consumption. However, this is absolutely not the case for Italian, where *pranzare* e *cenare* do exploit the semantic type [food], and *not* [event]. In *sono solito pranzare in modo leggero* ‘I use to have a light lunch’ the verb refers to the [food] type, as revealed by the scope of the adverbial phrase (in *pranzare in modo leggero*, lightness does not concern the event, but specifically defines the quality of the food).

³¹ Notice that adjectival co-predication also seems to be sensitive to semantic types. **Un profumo alla lavanda e ben confezionato* (*‘A lavender and well-packed scent’) is not acceptable, whilst *Un profumo alla lavanda ben confezionato* (without an explicit marker of conjunctive co-predication) sounds perfectly natural. This seems to suggest that two attributive predications cannot be joined by means of a copular conjunction when exploiting different semantic types of a nominal (here, the type [chemical_substance] and the type [physic_object]). This issue, however, goes largely beyond the scope of this paper, and I refer here to the current literature on the topic (Asher & Pustejovsky 2006, Pustejovsky & Ježek 2008, Brandtner 2009, Ježek & Melloni 2011).

³² In what follows, I simplify the Eventive Structure for the sake of argument, and integrate it with the distinction among Activities, States, Accomplishments and Achievements (Vendler 1967, Dowty 1979; Bertinetto 1986 for Italian). Differently, in GL the Eventive Structure distinguishes predicates into States, Processes and Transitions (Pustejovsky 1995: 67-75). In the Eventive Structure, RESTR refers to the temporal restrictions two sub-events can be bound to: RESTR = e1 < e2 means that the sub-event (1) logically precede the sub-event (2), which is causally implied by it.

³³ I shall not dwell here on the debate concerning the type of arguments the NSs are intended to fulfill and, more specifically, the constraints preventing the NSs from being patients, causers or incremental themes (Hale & Keyser 1993; see also Rimell 2012: 46-51 for an overview). I suspect that these constraints, when present, might be language-specific. From a semantic-oriented point of view, Kiparsky (1997) proposes that only the argument with the lowest theta-role in the hierarchy can be incorporated as the source nominal of a denominal verb. Finally, according to Rimell (2012) an incorporated noun does not realize an argument, simply because it is always possible to add it in a prepositional phrase, as long as further specified. However, see two counterexamples in (37a, b) above.

³⁴ I am grateful to one of the anonymous referees, who kindly proposed me this definition. A similar remark – with no reference to the notion of shadow argument – is made by Bogacki (1988), Clark & Clark (1979:788-792), Grossmann (2004b: 453 and 546), Karius (1985: 43-57). In my view, however, it is remarkable that the notion of shadow argument has been independently defined in GL not with relation to denominal verbs, and before being applied to derivational semantics.

³⁵ Italian verbs *asteriscare* ‘to star’, *virgolettare* ‘to put in quotation marks’, and so forth, run counter what Harley (2005: 63) claims about English: «Verbs of creation with conflation [...] are restricted to cases where the subject is creating the Theme in an alienable way, usually ‘out of’ the subject own body. Hence one can say *Jill drooled* but not *Jill caked*, meaning ‘Jill made a cake’».

³⁶ Notice that the location verb *spiaggiare*, in which the FORMAL Quale of the NS is activated, may occasionally acquire a manner of motion reading, thus allowing a further specification by means of a “non-cognate” adjunct: *È spiaggiata sul divano* (‘She stranded on the sofa’).

³⁷ The AGENTIVE role in the formal representation of a verb deals with the “relation [...] between *x* and *y* in the ‘bringing about’ [...] of a resulting state of *y*, where this state [...] did not hold before” (Pustejovsky 1995: 186-187).

³⁸ According to Pustejovsky (1995: 80, 183 ff.), causative predicates (as the accomplishment *scorzare*) involve an initial act, mapped into the AGENTIVE Quale, and a resulting state, mapped into the FORMAL Quale. They both are represented in the Qualia Structure of the verbal lexeme.

³⁹ It is certainly true that metaphorical meanings are a little less opaque than the contextual-based ones. For instance, *cicalare* 'to gossip' (< *cicala* 'cicada') is less unpredictable than *boicottare* 'to boycott', derived from the proper name Boycott (proper names are especially opaque in derivational semantics, since they have no Qualia roles at all). In its turn, however, *cicalare* is unpredictable if compared with *tarlare*, 'to worm' (< 'tarlo' woodworm), in which a (telic) conventional attribute of *tarlo* 'woodworm' is activated.

⁴⁰ A good example of a contextual-based verb is *to balcon* 'to jump from the balcony of a hotel into a pool', which spread during Summer 2010 in mass media language.

⁴¹ Table 6 only reports information concerning Qualia activation, and not metaphorical verbs. Notice that the percentages in Table 6 do not cover the whole 100%, and the missing part is precisely represented by metaphorical verbs.

⁴² A corpus-based research on the co-compositional behaviour of the simple nouns could hopefully prove that, say, the telic Quale of *zebra* or *argento* are never (or, at least, only marginally) activated in context, whereas the telic Quale of *martello* is probably the most frequent one.

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