Nataša Milivojević[1]

REVISITING VERBS OF EMISSION:
AN UPDATE ON SOME RELEVANT THEORETICAL ACCOUNTS OF LEXICAL SPECIFICATION AND ARGUMENT STRUCTURE OF EMISSION VERBS

Abstract: *The paper addresses the question of what semantic properties lexicalized in verbs determine their syntactic behavior in intransitive motion events and in resultative constructions in English and Serbian. Special attention is devoted to English and Serbian verbs of emission (specifically verbs of sound emission and partly also verbs of light, smell and substance emission) regarding their potential to surface as main verbs in these constructions and to combine with directional phrases within specific morphosyntactic templates (unaccusatives and unergatives). The presented research promotes a theoretical view according to which the established syntactic patterns can be applied across the whole class of verbs of emission to express a fuller range of atypical verb meanings in motion events. Theoretical conclusions of the research are also relevant for a wider theoretical description of motion events and resultatives in a cross-linguistic perspective. The paper puts forth additional implications regarding the projectionalist approach to semantic verb classes against the theoretical framework of Beth Levin (1993). Finally, the paper considers the relevant points of structurally realized similarities via relevant constructional templates in English and in Serbian, as well as some important points of morphosyntactic divergence between the two languages. The conclusions presented aim at a more comprehensive contrastive language typology based on language "framing" parameters.*

Key words: *verbs of emission, lexical specification, argument structure, motion events, natural language typology*

1. Introduction

The paper dominantly focuses on Verbs of Emission and explores their potential to surface as main verbs in two specific construction (al) argument alternations: intransitive motion constructions (1a) and resultative constructions or adjectival resultatives (1b):

---

[1] Assistant Professor, Faculty of Philosophy, University of Novi Sad.

1.   a. The train *rumbled* into the station.
        b. The door *banged* shut.

Both examples above contain English verbs of sound emission as construction head verbs. Intransitive motion constructions typically express movement realized along the trajectory or path of motion, where either motion or manner of motion is lexicalized in the verb, while the path is expressed in the obligatory complement, frequently a prepositional phrase or a small clause as explained in the syntactic theoretical approach of Hoekstra (1988). Verbs of emission are often integrated into a syntactic template of an unnacusative construction (Levin 1993), taking inanimate subjects. In unaccusatives, the inanimate external argument (thematic agent) undergoes motion but does not emit the sound lexicalized by the verb – rather the sound is caused by the movement itself or, in other words, movement produces the sound. English resultatives are secondary predicates indicating the result of the action described by the primary predicate in form of an adjective. In adjectival resultatives an abstract path argument is involved, corresponding to degrees along the scale denoted by the resultative predicate. The predicate *shut* in the example 1b is resultative because the sentence entails that the door became *shut* as the result of *banging* it.[2]

The research promotes a theoretical analysis primarily of verbs of sound and light emission; however we make an attempt to take the presented theoretical account further into a more comprehensive view of the whole class of emission verbs as established by Beth Levin (Levin 1993:233-38). Although Levin's work is extremely important as the starting theoretical base for all research concerning lexical verb structure and argument alternations as projections of verbal morphosyntatctic potential, her study *English Verb Classes and Alternations* does not offer a comprehensive enough account for the distributional range of verbs belonging to the established verb classes. What is more, some important argument realizations are not included in specific class descriptions and lexical specifications of the verbs, signaling that some classes need a certain amount of revising as well as that the complete work of distributing verbs into classes

---

[2] We will come back to resultative constructions in detail in the section of the paper which deals with English and Serbian in contrast.

based on their lexical specification and argument projection patterns is still far from finished. A portion of this paper shifts to a contrastive analysis of English and Serbian verbs of emission with the aim of pointing out certain somewhat unexpected similarities as well as some relevant points of divergence between the two languages against the theoretical background on language *framing* presented by Leonard Talmy (1975, 1991, 2000) and Beavers at.al (2009). Finally, the research sets out to list the meeting points and contrastive systemic differences between English and Serbian based both on theoretical (mostly semantic and morphosyntactic) reasons as well as on factors determining frequent and conventional (or conventionalized) language usage.

The paper is structured as follows: after initial introductory remarks on the aims and scope of the research, we move into a brief overview of all four subclasses within the larger class of verbs of emission; those subclasses are verbs of sound emission, verbs of light emission, verbs of smell emission and verbs of substance emission; the next section of the paper summarizes relevant theoretical research of verbs of emission; the following two sections of the paper present detailed accounts of verbs of sound emission and other verbs of emission in English and Serbian, respectively; the next section of the paper offers relevant theoretical conclusions on syntactic and semantic features of verbs of emission and in the follow-up of this section of the paper we also summarize the important linguistic contrasts between English and Serbian via language framing typology; the final section of the paper contains concluding remarks on the presented theoretical account.

The paper takes a corpus-based approach. The corpus examples were extracted from a number of various online corpora and printed sources.[3] The online corpora and databases used include The British National Corpus (BNC), Corpus of Contemporary American English (COCA) Wordnet and Webcorp online databases and Corpus of Contemporary Serbian Language, while the printed sources used for data extraction consist of twelve novels in English and Serbian which are all original English and Serbian texts (no translations or translated texts

---

[3] Detailed description of the corpus can be found in Milivojević 2011.

were used[4]). The analysis also includes a certain number of sentences which are the author's own examples constructed for the sake of theoretical debate, however these were all initially checked by native speakers of English.

2. English Verbs of Emission (Levin 1993)

Verb class 4.3 (Levin 1993:233-238) which is called Verbs of Emission (henceforth VE) involves verb meanings denoting emission of light, sound, smell and substance. These emissions are as a rule particular to some entity via conceptual structure or verb semantics which causes these verbs to take a limited range of subjects. More specifically, Levin proposes that the verbs which belong to this class actually describe intrinsic properties of their subjects, which is a notion also known as *teleological capacity* (Folli and Harley 2008, Milivojević 2011) of external arguments of such verbs.

The subclass of verbs of sound emission (henceforth VSE) is greater in number than the subclass of verbs of light emission (henceforth VLE). Levin and Rappaport Hovav (1995:68) argue that the reason for this class disproportion lies in the fact that the number of objects which emit sound under some sort of manipulation is greater than that of objects emitting light under specific circumstances, causing the more frequent usage of VSE. We also note at this point that the subclass of verbs of smell emission (henceforth VSME) contains only three verbs according to Levin's classification, while the subclass of verbs of substance emission (henceforth VSBE) contains twenty-seven verb lexemes in total.

VSE class, or class 43.2 (Levin 1993: 234-236) is the largest subset of the full class of emission verbs. Originally, it contains 119 verbs. We look here at the emission verb class as it is outlined in Levin (1993: 233-238), and at their Serbian (lexical) equivalents. Verbs of sound emission (VSE) are a subset of verbs of a larger class of emission verbs, along with verbs of light, smell and substance emission. They describe either the emission or production of sound. They are differentiated from each other by the physical properties of the sound that they lexicalize, as well as by its manner of production. Some of these

---

[4] The equivalency criterion for this paper is restricted to *contextual* rather than translational equivalents in English and Serbian.

verbs also figure among the verbs of manner of speaking, verbs of sounds made by animals or verbs of impact. They are generally intransitive, but may sometimes appear with an object (especially with *cognates*) and they allow for a certain predefined range of *external arguments* to the verb. We offer illustrative examples below:

2.   a. The train *rumbled* into the station. (unaccusative)
   b. The bus *rumbled* to a stop. (unaccusative)
   c. The bullet *whistled* through the window. (unaccusative)
   d. I'll go to Hell, I might as well be *whistling* down the wind. (unergative)[5]
   e. So I'll take Marley Bone Coach and *whistle* down the wind. (unergative)[6]

Examples 2a-2e are all examples of various instances of intransitive motion constructions where verbs of sound emission surface as heads. While examples 2a, 2b and 2c include unaccusatives with inanimate external arguments, examples 2d and 2e are somewhat unexpected unergatives with "true" agents (or "sound emitters") with the possible interpretation of motion where both sound emitter and the sound undergo movement at the same time. These constructions are especially interesting in English, as some prominent linguistic authors rule them out as ungrammatical and/or impossible in English as is shown in the example 3 (see for example Culicover and Jackendoff 2005):

3.   *Peter *yelled* down the street.[7]

VLE class, or class 43.1 (Levin 1993: 233-234) contains 21 verbs; according to Beth Levin's proposal this subset of verbs exhibits the following properties: locative alternation, locative inversion, there-insertion while some verbs in the class exhibit causative alternation, etc. What they do not exhibit according to Levin's account is the ability to surface as manner verbs of verbs

---

[5] Examples 2d-e available at Webcorp (March 2016).
[6] Although these examples are atypical, infrequent and highly informal, we feel that it is relevant to point at the possibility of such unergatives even in informal English use due to a better understanding of the distributive range of VSE.
[7] According to Culicover and Jackendoff, this sentence is not acceptable / grammatical with the interpretation of motion.

of either true or implied motion when combined with prepositional phrases. However, consider the examples 4a-4c:

4.   a. The firefly *sparkled* across the field.
       b. They (fireflies) *sparkle* across the breadth of the field behind our house, intermittently light up the large white pines, our green privacy wall, like summer's own hristmas trees.[8]
       c. His double-headed axe *flickered* in his powerful hands, light as a birch twig. [9]

The examples are intransitive motion constructions integrating verbs of light emission as construction heads. The path of movement is signaled by an obligatory prepositional phrase, just as was the case with VSE.

The class of verbs of smell emission in English, class 43.3 (Levin 1993:236-7) contains three typical verb lexemes and those are: *reek, smell and stink*. These verbs relate to the emission of the smells. This class of verbs is significantly smaller than the other classes within a larger set of verbs of emission. According to Levin, they also exhibit a more limited range of properties in terms of argument realizations within various constructional templates. Levin points out the following locative constructions as awkward in English:

5.   a. ??The onions *reeked* in the room.
       b. Peter *reeked* his way out of the room.

According to Levin, the example in 5b without the PP complement is actually completely acceptable in English. Still, let us briefly consider the following introductory example in 6, extracted from the British National Corpus (BNC):

6.   The smell of meat assailed her nostrils and she *followed it* (the smell) into the kitchen. / She *smelled* her way into the kitchen.

---

[8] Example available at http://stjaneco.squarespace.com/contributions/ 2015/10/19/firefly-nights-kim-norris, March 2016.
[9] The example extracted from the literary corpus in Milivojević 2011.

This sentence is an occasion of VSME integration into an intransitive motion construction, contrastive with the theoretical description of this verb subclass by Levin. Clearly, in the examples in 6 the smell is moving along the trajectory lexicalized in the prepositional phrase *into the kitchen.*

Finally, Verbs of Substance emission (VSBE), class 43.4 (Levin 1993:237-8) exhibit the following prominent argument realization patterns: locative alternation, locative inversion, causative alteration, etc., but Levin again *does not* place lexicalizing motion within intransitive motion events as an option for these verbs. Yet, the example in 7, extracted from the BNC clearly shows that such lexicalization is possible:

7.   Water *gushed* through the streets.

Examples from the BNC in 8a-d all illustrate the same point for the prototypical VSBE *bleed*:

8.   a. They got the harness off him, and turned him
        to *bleed* into the grass rather than into his own throat.
        b. Then, with the paint still damp on the paper, I apply a
        small, but watery mixture of burnt umber and Prussian
        blue to the area where the bulk of the shadows are found
        and allow this to *bleed* into the stone undercoat.
        c. Well, if all else failed, she could always *bleed* out of the
        window, she thought, with a mordant shrug.
        d. Red lights *bleed* from behind wire mesh, ankle-height,
        like the burning eyes of something in the sewer out of a
        John Carpenter film.

3. Theoretical framework of the research

The dominant theoretical background of the investigation is the proposal made by Leonard Talmy. Talmy (1975, 1985, 1991, 2000) proposes a two-way typology according to motion expressions available in a language. According to this proposal languages fall into two main types, on the basis of where the *path of motion* is represented in a sentence expressing a *motion event* - or, more generally, where the core schema is represented in a sentence expressing a macro-event (allowing for it to consist of at least two micro events or *subevents*).

> *This means that another semantic component, the co-event –
> usuallythe manner or the cause of the motion – might show up in
> a particular constituent other than the one occupied by the path.
> In this two-category typology, if the path is characteristically
> represented in the main verb or verb root of a sentence, the
> language is verb framed, but if it is characteristically represented
> in the satellite or in a P element, such as prepositional phrase,
> case inflection, etc. the language is satellite framed (Milivojević
> 2011: 75).*

Let us take a look at the following contrastive examples:

9.   a. The truck *rumbled*   through the gate. (English)
       b. Kamion *je tutnjao*   ulicom. (Serbian)
             truck   is rumbled   down the street
       c. Je suis *entré   dans* la maison (en boitant) (French)
          I   am entered   in   the house (in limping)
       d. La botella entro   a la   cueva   flotando. (Spanish)
           the bottle   entered in to the cave (floating)

       In examples 9a and 9b, that is in the English sentence as
well as in the Serbian one, what the verb lexicalizes is the manner
of movement of the *figure* within the given directed motion
construction. In examples 9c and 9d, French and Spanish
examples respectively, the verbs lexicalize the *path* (or the *scale*)
of movement of the figure, with the manner modification
expressed by the satellite. Or, in more formal terms, the verbs in
9a and 9b *conflate* motion and manner, while verbs in 9c and 9d
conflate motion and path. What is interesting about sentences 9a
and 9b is that the verbs surfacing as verbs of movement (or
motion) are in fact *verbs of sound emission*.
       Let us now consider the following string of syntactic
contrasts in English. In the examples below, we focus on the
distribution and restrictions on external arguments projected by
verbs of sound emission in English:

10.   a. The train *rumbled/whistled* through the station.
       b. The bullet *whistled* through the window./*The bullet
       whistled.
       c. Peter *shouted* *through/down the street.

It is generally assumed in the literature that agents are as a rule animate, and that animacy and volition are obligatory semantic features of true agents. However, what these examples show is that there are cases where such requirements are not necessarily applied. Examples 10a and 10b are instances where external arguments to verbs of emission are in fact inanimate entities on one hand, while the example in 10c with the animate agent is in fact ruled out as ungrammatical with motion interpretation. We are going to adopt here the account proposed by Folli and Harley (2008) who claim that even such inanimate subjects should in fact be labeled as agents based on the notion of *teleological capacity.*[10]

> In all cases, however, we will argue that the source of the animacy effect has its roots in the notion of teleological capability: the inherent qualities and abilities of the entity to participate in the eventuality denoted by the predicate (Folli and Harley 2008:190).

When the subject of a verb of sound emission is not teleologically capable of producing the sound lexicalized by the verb (i.e. the bullet can not emit the sound on its own, rather the sound is the obligatory consequence or the result of motion), this triggers changes in the syntactic structure of a motion event. The sentence in 10b is unacceptable without a goal of motion PP, as is shown in the example. Here, the sound emission verb becomes a verb describing the motion of the entity, and the sound is interpreted as a manner element describing that motion, namely the motion itself and not the agent produced a whistling noise.

> It must be the motion of the bullet that produces the whistling, rather than the bullet, as can be seen when such sound emission motion predicates require animate subjects as yell and laugh in *John yelled into the room or *Mary laughed out of the room (Folly and Harley 2007:192).

Furthermore, they claim that since motion cannot produce *yelling* or *laughing*, these verbs may not surface as head verbs in motion events (in unergative constructions) — they may only be

---

[10] We come back to this point later, in the section of the paper that discusses syntactic and semantic features of VE as a V class.

true unergative activity verbs or true agents which emit the sound lexicalized in the verb:

> The subjects of so-called *theme unergatives* can be animate or inanimate. The subjects of unergative verbs are of course Agents—indeed, in a syntactically-based approach to theta-role assignment they must by definition be Agents, since they occur in the specifier position of the external VP. If they were not Agents, we would expect the verbs to exhibit hallmarks of an altered syntactic structure, for instance, they might be expected to behave like unaccusative verbs. In most cases, they do not. (Folly and Harley 2008: 195).

4. Verbs of Sound Emission (VSE) in English and Serbian

English verbs of sound emission are the following (those English verbs whose primary meaning is generally related only to sounds emitted from the human vocal tract have been excluded here):

> *applaud, babble, bang, beat, beep, bellow, blare, blast, bleat, boom, bubble, burble, burr, buzz, chatter, chime, chink, chirr, chitter, chug, clack, clang, clank, clap, clash, clatter, click, cling, clink, clop, clump, clunk, crack, crackle, crash, creak, crepitate, crunch, cry, ding, dong, dingdong, drone, explode, fizz, fizzle, groan, growl, guggle, gurgle, hiss, hoot, howl, hum, jangle, jingle, knell, knock, lilt, moan, murmur, patter, peal, ping, pink, pipe, plonk, plop, plunk, pop, purr, putter, rap, rasp, rattle, ring, roar, roll, rumble, rustle, scream, screech, shriek, shrill, sing, sizzle, snap, splash, splosh, splutter, sputter, squawk, squeak, squeal, squelch, strike, strum, swish, swash, swoosh, thrum, thud, thump, thunder, tick, ting, tinkle, toll, tootle, trill, trumpet, twang, ululate, vroom, wail, wheeze, whine, whir, whish, whistle, whoop, whoosh, whump, zing.*
>
> (The altered class contains 124 verbs.)[11]

The present class is a revised verb class initially established by Levin (1993: 234-237). Certain verbs have been left out due to their obsolete or infrequent use, while some new verbs have been added to the class used as the basis of the

---

[11] See Milivojević 2011 for original corpus details.

present research. The English data were checked against the Wordnet online database for English (available at http://wordnetweb.princeton.edu/perl/webwn, March 2016). English verbs which were left out from the original class are: *blat, chir, clomp, plink, thunk*. English verbs added to the original verb class through Wordnet are*: chirr, clop, dingdong, drone, guggle, gurgle, splosh, strum, swash, whoop.*

We base our analysis for Serbian on the class of Serbian lexical equivalents of Levin's class and on the corpus of contextualized V lexemes (a sentential corpus), made up of both literary language sentential examples, and sentential examples from the Corpus of Contemporary Serbian. We specifically look at those members of the class which are found with directional phrases and investigate Serbian VPs involving a sound emission component with respect to their capacity to combine with directional phrases and receive motion interpretation and/or resultative interpretation. The Serbian verbs of sound emission are:

aplaudirati blebetati blejati brbljati brektati brujati bubnuti bučati ciknuti cviljeti cvoknuti cvokotati cvrčati cvrkutati čangrljati čavrljati čegrtati ćućoriti ćurlikati dahtati dobovati drečati dreknuti drndati eksplodirati fijukati fiskati frfljati grgotati grmjeti groktati grunuti gruvati gudjeti hripati hroptati hrskati hučati hujati izbrbljati izlupati izviždati ječati jeknuti klepetati klokotati kloparati klopotati krckati krcnuti krčati kričati kriještati krkljati kucati lupiti lupnuti meketati mrmoriti odjekivati odzvanjati odzvoniti oriti se otkucati pisnuti pištati pljeskati pljesnuti pljusnuti pozvoniti praskati prohujati promrmoriti prošištati prozviždati prožuboriti prštati pucati puckarati puckati pucketati pucnuti pući rastrubiti režati rikati romoriti soptati stenjati strugati svirati šištati škljocati škljocnuti škripati šljapati šljapkati štektati štropotati šumjeti šuškati šuštati tandrkati treskati tresnuti treštati trubiti tuliti tutnjati urlati uzdisati vrčati vrisnuti zagrmeti zalupiti se zaštektati zavijati zazvečati zujati zveckati zvečati zveketati zveknuti zviznuti zviždati zviždukati zvižduknuti zvoniti zvrndati žagoriti žamoriti žuboriti.

(The newly established class contains 134 verbs.)

VSE in both English and Serbian may become *verbs of intransitive motion*; in such cases, they require a directional phrase as a complement, be it a directional phrase PP or some other XP or a small clause with a directional interpretation. In this use, they describe the motion of an entity, characterized by the concomitant emission of the sound whose nature is lexicalized in the verb. Serbian VSE are frequently prefixed - that is they may require an additional *P element* within the construction other than the obligatory PP so that the scale of motion is fully realized.[12]

5. Other Verbs of Emission in English and Serbian

Contrary to Levin (1993: 234-7), we claim that verbs of emission other than sound emission may appear with directional phrases in English with both animate and inanimate subjects in external argument position (11a is an example of VSE, examples 11b and 11c are examples of verbs of light emission (VLE) and 11d is an example of the verb of substance emission (VSBE)):

11.   a. The elevator *whizzed* upward.
        b. The light *flashed* into the sky.
        c. The firefly *flickered* into the room.
        d. The paint *oozed* across the table.

What is more, we claim that there is more freedom along a *structural continuum* of motion expression in these cases than is initially proposed in Levin's projectionalist approach.

The same kind of construction variety is present in Serbian as well:

12.   a. Svitac   je *svetlucao* preko polja. (VLE)
         the firefly is sparkled across the field
        b. Voda   je *izbijala*   ispod belog kamena. (VSBE)
          water is beat.out   under white stone

These corpus examples in English and in Serbian offer solid empirical evidence against some constructional approaches

---

[12] The term is adopted from Gehrke 2008 – P elements are all satellite morphemes which lexicalize the path of motion. In English, they are typically prepositional phrases while in Serbian they also include prefixes and case inflections.

(see Culicover and Jackendoff 2005 among others), where it is claimed that directed motion constructions with (sound) emission verbs are "English specific", also ruling out this type of formal structure with any other emission type verb in any language other than English.

6. Syntactic and Semantic Features VE

Generally, VSE are intransitive verbs, taking the emitter argument as the subject (allowing both animate - human or not - and inanimate subjects, but disallowing abstract nouns in this position). According to Levin, in English these verbs take a very limited range of subjects, since the verbs in a sense describe (or refer to) the intrinsic properties of the sound that they lexicalize. Another generalization we propose as an update to Levin (1993) is that the agents of such verbs must be *teleologically capable* (cf. Folli and Harley 2008) of relevant sound production, rather than be simply animate or volitional. According to Folli and Harley (2008:191), *teleological capability* is the inherent ability of the entity to participate in the eventuality denoted by the predicate, while *animacy* and *agency* are mutually dissociated. What it takes for a non-agentive subject to be teleologically capable is the ability to instigate and/or conduct the emission event on its own, be it a willed or a non-willed action. The relevant notion which distinguishes *agents* from *causers*, for example, is the subject's *internal teleological capability* of generating the event on its own, from start to finish—not the animacy of the subject. Causers (both animate and inanimate) may trigger the initiation of an event, but do not exercise control over its unfolding, due to their *teleological incapability.* This kind of formalization actually allows for both animate and inanimate external arguments with VSE in both English and Serbian.

Another important point in our analysis is the definition of the *lexical specification* of the verb. Lexical specification is the internal semantic content of the verb lexeme, which triggers its argument structure realization. In terms of motion events, what is relevant is whether or not a certain verb will project both relevant arguments to the construction: agent and path argument. According to Folli and Harley (2006:24), VSE are the so called *minus path verbs* (-path Vs), which means that their lexical specification does not normally project a path argument. This can be illustrated by the table below:

	+path	**-path**
+agent	walk, run, swim	*whistle, hiss, sing*
-agent	roll, float, slide	shudder, tremble

1 Path projection

What the table actually shows is that for a VSE to receive a directed motion interpretation, the lexical specification of the verb has to be changed, or shifted into a lexical specification of the verb of directed motion, such as *walk* or *run*. In other words, when combining with a prepositional path argument, a VSE becomes a directed motion verb.

The following English and Serbian examples were taken from English and Serbian online corpora as illustrations of the above mentioned facts, namely The British National Corpus (BNC) (available at http://corpus.byu.edu/bnc/) in (13), and The Corpus of Contemporary Serbian Language (available at http://www.korpus.matf.bg.ac.yu/korpus/login.php) in (14):

13. a. As the tramcars **rattled, roared** and **clanged** along Norfolk Street, 60 yards or so from our tenement building, and horse-driven carts **rumbled** by, the kids of the street were playing, shouting, yelling --; or wiping snotters away with the sweat. It was after school, 4.30 on a nice afternoon...
b. Outside, the rain **gurgled** in shining gutters.
c. Thick, black rain clouds massed in the sky and, as I fell asleep, rattling raindrops **pattered** against the wooden shutters.
d. A nurse **rustled** into the tiny space. Kate could smell Pears soap and the smell brought back memories of when she had been younger.

14. a. ...pajtaš iz Italije, prešao pešaka granicu. Ja to nisam znala, odradim lepo svoj posao, a njega zatvore. Sledeći dan **škripe** kočnice iza ćoška, Giška izleće iz kola i pravo pred mene...
'breaks squeal around the corner'

b. Dok automobil **stenje** u krivinama koje su toliko spiralne da se čak ne bi mogle uporediti ni sa zavrtnjem, kroz maglu koja dočarava visoke planinske vrhove...
'the car gasps through the curves'
c. Nes je to primio kao još jedan dobar znak. Slušao je trenutak , dva , kako voda **pršti** po kadi , a onda je obukao čistu belu košulju i izvadio novac koji je iz pretinca u kolima prebacio u jedan od svojih kofera...
'water is splashing in the tub'
d. Za to vreme voz je, dahćući, puštajući naglo paru, **kloparao** visokim nasipom između požutelih kukuruznih polja, između retkih riđih šuma, između talasastih livada...
'the train clatters uphil'

Verbs of light emission (VLE) on the other hand relate to the emission of light, and some of them (both in English and in Serbian) allow a transitive use with a causative interpretation, as well as locative alternations. We also want to claim here that they may denote either *fictional* or *real* motion (possibly also in combination with directional prepositional phrases to denote pure light emission along a projected scale) both in English (examples are given in 15) and in Serbian (examples are given in 16). The examples below were also extracted from the online corpora mentioned in the previous section:

15.   a. If we could have **beamed**, her down like in Star Trek, it would have been all right, but she just couldn't cope with getting on a plane or a boat.
b. With binoculars the chances are obviously much less, but one never knows --; and it is true that in 1885 a supernova **blazed** out in the Andromeda Spiral and almost reached naked-eye visibility.
c. The mass of new, hot rock forcing its way up through the crater floor had both helped to displace the water from the crater, and heated it up to nearly boiling point, so it was a scalding torrent that **flashed** down the valley, travelling at a speed of something like ninety kilometres an hour.
d. His double-headed axe **flickered** in his powerful hands, light as a birch twig.

16. a. Kiša je lila pre neko veče, **caklio se** asfalt u Knez-Mihailovoj ulici, kao pokisli golubovi sklanjali su se prolaznici ukafanu Kolarac.
'asphalt was glowing on the street'
b. A nad okeanom **treperi**, i onih dana prepunih sunca, neka snena izmaglica, kao prozirni plašt pare.
'the mist flickers above the ocean'
c. Pođe, pođe, dođe na mesto gde se skreće lepotici. Skrenu. Dođe pred brvnaru. A u brvnari gori veliki oganj i **svetli** kroz prozore.
'the fire is glowing through the windows'

What the English VLE examples in (15) show is that light emission verbs can in fact surface in intransitive motion constructions where they denote directed movement, as in 15a and 15c, or metaphorical motion meaning as in 15b, and finally something like implied movement (either momentary or iterative) as in 15d. The Serbian examples in (16) illustrate the fact that VLE behave similarly to English VLE verbs, allowing for a similar range of motion meanings: implied movement accompanied by light reflection in 16a, 16b and light emission along the projected path (in other words, the product of the emission, but not the emitter, moves along an unbounded scale) in 16c.

7. English and Serbian VE in contrast

What can be concluded from the discussion and the examples so far is that Serbian which should be a verb-framed language exhibits a kind of morphosyntactic potential in expressing motion events which is similar to the satellite-framed English. Both verb classes examined so far, namely VSE and VLE in English and in Serbian, will surface in motion constructions, with the manner co-event on the verb, and the path (which in these cases equals the *scale* of motion) expressed by the satellite, with various types of subjects or agents, both animate and inanimate. In the remainder of the paper, we illustrate some points of divergence between English and Serbian. Let's take a look at the following set of examples:

17. a. *Peter yelled down the street.

b. Jovan je vikao niz ulicu.
   Jovan is yelled down street
c. Metak je prozviždao   pored   prozora.
   bullet is whistled.through by   window
d. ??*Metak je uzviždao   kroz   prozor.
   bullet is whistled.in   through window

While the English sentence in 17a is ungrammatical, i.e. there is no available motion reading for the VP, the Serbian example is grammatical. Example 17b is in fact ambiguous between two readings, where, in the first one, the animate subject, which is the emitter of the sound, is not moving, while the emitted sound is the *theme* (or the *figure*) of motion, while in the second available reading, both the emitter of the sound and the sound produced are moving along the path. This is an interesting instance in terms of event structure, showing that Serbian exhibits more freedom in motion event encoding than English does. Examples 17c and 17d show that Serbian sound emission verbs combine more freely with paths implying unbounded scales, than with those with bounded scales (or goals).

The next point in the analysis is illustrated in the following sets of examples:

18. a. Peter hammered the metal flat.
   b. John slammed the door shut.

The sentences in (18a-b) are instances of the so-called adjectival resultatives (AP resultatives), or *secondary resultative predicates.* Namely, there is a general correlation between the ability of combining telic, bounded path PPs, with manner of motion or motion verbs and the availability of secondary resultative predicates. Such resultative constructions are generally unavailable in languages that have been classified as verb-framed (cf. Gehrke 2008). Folli and Ramchand (2005: 91), for example, note that resultative constructions with adjectival phrases (APs) are grammatical in English (19a) but ungrammatical in Italian (19b).

19.   a. John broke the vase open.
       b. *Gianni ha rotto il vaso aperto.
       Gianni has broken the vase open.

The data call for a unified account of the integration of PPs and APs into event structure according to which PPs can be integrated as secondary resultative predicates and thus derive an accomplishment structure under certain conditions. Surprisingly enough, Serbian behaves like verb-framed Italian in this respect. The examples in (20) are instances of such constructions with animate subjects:

20.   a. *Jovan je lupio vrata otvorena.
          Jovan is slam   door   open
       b. Jovan je zalupio vrata/ vratima.
          Jovan is slam.to door/ with door
       c. Jovan je tresnuo vrata.
          Jovan is banged door
       d. Jovan je zalupio   slušalicu.
          Jovan is banged.down phone

There are no constructional Serbian to English equivalents of *AP resultatives* – those sentences will be ruled out as ungrammatical in Serbian (20a). In terms of semantics and usage, the lack of AP resultatives in Serbian is compensated by prefixes, that is, again by available *P elements*[13]. Gehrke argues that the focus on Talmy's cross-linguistic variation has to be

> shifted away from the restriction on paths expressed on the verb or elsewhere, to the question whether or not an accomplishment structure can be built relying on the integration of a non-verbal predicate into an activity structure (Gehrke 2008:216).

Given this shift in the analysis, then, Serbian (along with Russian and Czech, according to Gehrke's data) behaves like a verb-framed language. Furthermore, Beavers at al. (2009) argue that the observed cross-linguistic variation arises primarily from the interaction of motion-independent morphosyntactic and lexical factors. First, while the verb is one of several lexical categories that can encode either manner or path, it is unique

---

[13] English particles and Serbian prefixes, for example.

among all categories in being the only obligatory element across all clauses that describe motion (since it heads the VP that forms the nucleus of the clause). Second, the semantic component which is not expressed in the verb, if it is not inferable from context or is unimportant and thus omissible, may (or must) be expressed by some other constituent or the satellite.

8. Concluding remarks

In sum, Talmy's typology is too coarse-grained to provide a full picture of the way motion events are expressed across different languages. Serbian seems to be more liberal than English in expressing eventualities that involve both motion and sound emission since it freely allows unergatives with true sound emitter agents with motion interpretation. Both languages allow unaccusatives in intransitive motion constructions. Serbian, however, does not allow adjectival resultatives with VE. Verb phrase and the directional phrase have somewhat independent argument structures (the agent of one being the theme of the other), but still just one line of projection as only one of these two lines can have an agent.

Furthermore, we shall conclude that verb classes based solely on the semantic properties of the verb, excluding the conceptual properties of verb arguments, may not be the best solution to the appropriate description of verb meaning in general. Verbs both *incorporate* (root meaning) and *project* (arguments), therefore some stricter, more rigid or more formal criteria at the syntax-semantics interface must be at play. This calls for additional considerations of argument features which are external to the verb when establishing semantic verb classes based on lexical and semantic verb features with the aim of a more comprehensive account of these and the related linguistic phenomena in natural languages.

References

Arsenijević, Boban, and Nataša Milivojević. "Sound emission and directional phrases in Serbo-Croatian". *Paper presented at SLG 4 and SinFonIJA II* (Sarajevo Linguistic Gathering 4 and SinFonIJA 2 Conference). Sarajevo. BiH, 2009.

John, Beavers, and Beth Levin. Shiao Wei Tham. "The Typology of Motion Expressions Revisited". *Journal of Linguistics* 46.2 (2009): 331-77.

Peter, Culicover, and Ray Jackendoff: *Simpler Syntax*. Oxford, New York: Oxford University Press, 2005.

Raffaella, Folli, and Heidi Harley. "On the licensing of causatives of directed motion: Waltzing Matilda all over". *Studia Linguistica* 60.2 (2006): 1-35.

---. "Teleology and animacy in external arguments". *Lingua* 188.2 (2008): 190-202.

Raffaella, Folli, and Gillian Ramchand. "Prepositions and Results in Italian and English: an Analysis from Event Decomposition" in *Perspectives on Aspect*, ed. H. Verkyul, H. van Hout and H. de Swartz. Dordrecht: Springer (2005): 81-105.

Berit, Gehrke*. Ps in Motion: On the Semantics and Syntax of P Elements and Motion Events*. LOT Dissertation Series 184. Utrecht: LOT, 2008.

Adele, Goldberg, and Ray Jackendoff. "The English Resultative as a Family of Constructions". *Language* 80. 3 (2004): 532-68.

Jennifer, Hay, and Christopher Kennedy, Beth Levin. "Scalar Structure Underlies Telicity in Degree Achievements" in *SALT IX*, ed. Mathews, T. and D. Strolovitch. Ithaca: CLC Publications (1999) 127-44.

Teun, Hoekstra. "Small Clause Results". *Lingua* 74 (1988) 101-39.

The British National Corpus (BNC) (April, 2016) Retreived from http://corpus.byu.edu/bnc/

The Corpus of Contemporary Serbian Language (April, 2016) Retreived from http://www.korpus.matf.bg.ac.yu/korpus/login.php

Beth, Levin. *English Verb Classes and Alternations: A Preliminary Investigation*. Chicago and London: The University of Chicago Press, 1993.

Beth, Levin and Malka Rappaport Hovav. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge Mass: MIT Press, 1995.

Nataša, Milivojević. "The sound+motion construction in English and Serbian: What happens when headless movement gets loud?'". Paper presented at *Structures across Culturess Conference* (ELLSSAC), Belgrade, Serbia, 2007.

---. *Konstrukcioni idiomi sa glagolima emitovanja zvuka u engleskom i srpskom jeziku – generativna analiza*. Doktorska disertacija. Filozofski fakultet. Univerzitet u Novom Sadu. Novi Sad: 2011.

Leonard, Talmy. "Semantics and syntax of motion" in *Syntax and Semantics* vol. 4, ed. J. P. Kimball. New York: Academic Press (1975): 181–238.

---. *Toward a Cognitive Semantics: Typology and Process in Concept Structuring*. Cambridge. MA: MIT Press, 2000.

---. "Lexicalization patterns: Semantic structure in lexical forms" in *Language Typology and Syntactic Description Vol. 3: Grammatical Categories and the Lexicon*, ed. T. Shopen. New York: Cambridge University Press (1985): 57-149.

---. "Path to realization – via aspect and result" in *Proceedings of BLS* 17, (1991): 480–519.