Instrument–Subject Alternation: A Further Case Study in Lexical Pragmatics

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Abstract The instrument–subject alternation is a cross-linguistic phenomenon in which a verb's semantic argument with an instrument thematic role can be expressed syntactically not only as an adverbial phrase but also as a subject instead of an agentive subject. Using data from Hungarian, in the present paper I attempt to work out an account of this alternation that has the following advantageous features. First, by means of a pragmatically oriented weaker notion of causation (Koenig et al., J Semant 25:175–220, 2008) a solid basis is assumed to determine which verbs alternate and which verbs do not. Second, syntactic alternations are not treated as lexical or constructional phenomena (as are in lexical or constructional approaches, respectively). However, they fit a lexical-constructional approach which naturally extends to lexical pragmatics (Bibok, From syntactic alternations to lexical pragmatics, 2010). After establishing corresponding verbal meaning representations the lexical pragmatic account can also contribute to the understanding of the syntactic alternation under discussion presumably in other languages than Hungarian.

Keywords Syntactic alternation · Underspecified meaning representation
World (encyclopedic) knowledge · Lexical-constructional analysis
Lexical pragmatics

1 Introduction

The instrument–subject alternation is a cross-linguistic phenomenon in which a verb's semantic argument with an instrument thematic role can be expressed syntactically not only as an adverbial phrase but also as a subject instead of an agentive subject. It is illustrated by the examples below in Hungarian.

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(1) (a) *Rita-Ø betör-te egy hajszárító-val az ablak-ot.*
Rita-NOM break-PST.DEF.3SG a hair.dryer-INS the window-ACC
'Rita broke the window with a hair dryer.'

(b) *A hajszárító-Ø betör-te az ablak- ot.*
the hair.dryer-NOM break-PST.DEF.3SG the window-ACC
'The hair dryer broke the window.'

(2) (a) *Rita-Ø megszárít-otta egy hajszárító-val az ablak-ot.*
Rita.NOM dry-PST.DEF.3SG a hair.dryer-INS the window-ACC
'Rita dried the window with a hair dryer.'

(b) *A hajszárító-Ø megszárít-otta az ablak-ot.*
the hair.dryer-NOM dry-PST.DEF.3SG the window-ACC
'The hair dryer dried the window.'

(3) (a) *Rita-Ø megrak-ta egy targoncá-val a teherautó-t.*
Rita-NOM load-PST.DEF.3SG a forklift-INS the truck-ACC
'Rita loaded the truck with a forklift.'

(b) *A targonca-Ø megrak-ta a teherautó-t.*
the forklift-NOM load-PST.DEF.3SG the truck-ACC
'The forklift loaded the truck.'

While in sentences (1a),[1] (2a) and (3a) the instruments are realized as adverbial phrases, in sentences (1b), (2b) and (3b)—as subjects. However, with other Hungarian verbs the alternation at stake cannot appear. Cf.:

(4) (a) *Rita-Ø felmos-ta egy felmosórongy-gyal a padló-t.*
Rita-NOM wash-PST.DEF.3SG a floor-cloth-INS the floor-ACC
'Rita washed the floor with a floor-cloth.'

(b) **A felmosórongy-Ø felmos-ta a padló-t.*
the floor-cloth-NOM wash-PST.DEF.3SG the floor-ACC
'The floor-cloth washed the floor.'

[1]The glosses are not intended to capture all morphological properties but indicate the necessary ones for the present purposes. The abbreviations used in the glosses throughout this paper are the following: 3SG = third person singular, ACC = accusative, DEF = definite (conjugation), ILL = illative, INDF = indefinite (conjugation), INE = inessive, INS = instrumental, NOM = nominative, PRS = present (tense), PST = past (tense), SUB = sublative and SUP = superessive.

(5) (a) *Rita-Ø* *felsöpör-te* *egy* *söprű-vel* *a* *padló-t.*
Rita-NOM sweep-PST.DEF.3SG a broom-INS the floor-ACC
'Rita swept the floor with a broom.'

(b) **A* *seprű-Ø* *felsöpör-te* *a* *padló-t.*
the broom-NOM sweep-PST.DEF.3SG the floor-ACC
'The broom swept the floor.'

How can one account for the different behavior of instruments with various verbs? To address this question, in the present paper I attempt to work out an account of the alternation under discussion that has the following advantageous features. First, by means of a pragmatically oriented weaker notion of causation (Koenig et al. 2008) a solid basis is assumed to determine which verbs alternate and which verbs do not. Second, syntactic alternations are not treated as lexical or constructional phenomena (as are in lexical or constructional approaches, respectively). However, they fit **a lexical-constructional approach** which naturally extends to **lexical pragmatics** (Bibok 2010). As demonstrated in my earlier work (Bibok 2010, 2014, 2016b), a lexical pragmatic perspective which favors encyclopedic and contextual information to convert encoded word meanings into full-fledged concepts guarantees an economical way to get constructional meanings appearing in syntactically alternating structures.

The organization of the paper is as follows. With the help of two syntactic alternations other than the real object of the present study, namely, the locative and the manner/direction of motion alternation, Sect. 2 argues for the lexical-constructional conception against a merely lexical or a merely constructional framework. Criticizing earlier proposals (Levin 1993; Dudchuk 2007) for the instrument–subject alternation, Sect. 3 offers its novel analysis. Section 4 also indicates further topics for future research that have not been considered systematically before in connection with the instrument–subject alternation. They include issues whether instrumental adverbial phrases express a semantic argument or adjunct as well as whether constructions with an instrumental subject only denote events. The paper ends with Sect. 4, which summarizes the results.

2 Different Approaches to Syntactic Alternations

To begin with, I want to briefly point out how various syntactic alternations can be explained. In addition, it turns out that the same change in (syntactic) argument structure may be analyzed differently. Let us first consider examples of the locative alternation[2] in (6).

[2]For an overview of the literature about locative alternation, see Levin 1993: 49–55.

(6) (a) *Az anya-Ø zsír-t ken-Ø a kenyér-re.*
the mother-NOM fat-ACC smear-PRS.INDF.3SG the bread-SUB
'The mother is smearing fat on the bread.'

(b) *Az anya-Ø zsír-ral ken-i a kenyer-et.*
the mother-NOM fat-INS smear-PRS.DEF.3SG the bread-ACC
'The mother is smearing the bread with fat.'

Both internal (syntactic) arguments of *ken* 'smear' can be associated with two distinct roles: the noun phrase *zsír* 'fat' (with corresponding case inflections) can play both a theme role and a means role in (6a) and (6b), respectively, as well as *a kenyér* 'the bread' (with corresponding case inflections)—both a goal role and a theme role in (6a) and (6b), respectively. If one is not satisfied with a sense enumeration conception of the lexicon applied in traditional lexicography (cf.: *ken* 1. and *ken* 2. in Bárczi and Országh 1959–1962 as well as in Pusztai 2003), one faces with three kinds of theoretical explanations concerning the appearance of *ken* 'smear' in both (6a) and (6b). First, **a lexical rule** can create a new lexical item, operating on the semantic representation of an input lexical item. The following rule can be proposed for verbs of the locative alternation including, e.g., *ken* 'smear' (cf. Pinker 1989: 79).[3]

(7) "If there is a verb with the semantic representation 'X causes Y to move into/onto Z', then it can be converted into a verb with the semantic representation 'X causes Z to change state by means of moving Y into/onto it'" (Bibok 2014: 55).

Second, **a constructional account** goes as follows. In Construction Grammar (Goldberg 1995) a semantic representation of a lexical item consists of a list of participant roles. Citing Goldberg's (1995: 176–177) own example, we can represent the verb *slather* as in (8).

(8) *slather* <slatherer, thick-mass, target>

The verb *slather* appears in both constructions of the locative alternation in (9)

(9) (a) Sam slathered shaving cream onto his face;
(b) Sam slathered his face with shaving cream

[3]Three remarks are in order in connection with the formulation of the lexical rule in (7):
(i)The relationship between the two semantic representations, in fact, are two-directional, i.e., the former representation can also be reached from the latter.
(ii)Unlike traditional lexicography, (7) does not present the relationship between two lexical representations but two lexical items.
(iii)Despite the original assumption, *Z* in the 'with' variant is not necessarily affected totally as attested by (6b) while the verb *ken* 'smear' with a preverb *meg-* or *be-* in such a construction denotes an event in that the bread is totally affected. Cf. also the Levin's (1993: 50) remark, according to which "a statement involving the notion "holistic" is not entirely accurate".

because its three participant roles are compatible with the argument roles of both the caused-motion construction and the causative-plus-*with*-adjunct construction. The former has a cause, a theme and a goal. The two role sets can be fused with each other since the slatherer is semantically construable as a cause, thick-mass as a theme—for it undergoes a change of location, and the target as a directional. In the latter construction, the fusion of the slatherer and the cause is the same as above. Nevertheless, the target can be construed not only as a directional, but also as a theme—for the entity on which the substance is slathered is affected. Since there is a third participant role of *slather*, namely, thick-mass, a *with*-phrase appears even if it counts as an adjunct of (9b) in the framework of Construction Grammar.[4]

Third, **a lexical-constructional approach** to the locative alternation does not consider it purely lexical or purely constructional but a complex, i.e., lexical-constructional, phenomenon. To override shortcomings of the rivalling lexical and constructional theories,[5] the third conception assumes that being underspecified and having optional elements relevant to one or another constructional meaning, lexical representations of verbs provide a semantic and pragmatic

[4]If someone thinks that argument roles assigned to the mass and the target are named somewhat confusingly, she will see below in Sect. 3 how they follow from the internal structure of lexical-semantic representations built in the lexical-constructional framework instead of being labelled in an external way.

[5]Here I only have space to mention difficulties of putting lexemes into narrow semantic classes (for further details, see Bibok 2008 and 2014). Narrow semantic classes are used to make more precise the scope of a lexical rule such as (7) and—since they were also transferred into the machinery of Construction Grammar—the fusion of verbs with constructions. However, defining such classes does not seem to be straightforward. Consider the following examples.

(i) (a) *Az apa-Ø kávé-t löttyent-Ø az asztalterítő-re.*
the father-NOM coffee-ACC spill-PRS.INDF.3SG the tablecloth-SUB
'The father spills coffee on the tablecloth.'

(b) **Az apa-Ø kávé-val löttyent-i az asztalterítő-t.*
the father-NOM coffee-INS spill-PRS.DEF.3SG the tablecloth-ACC
'The father spills the tablecloth with coffee.'

As a non-alternating verb, *löttyent* 'spill' should belong to the *dribble*-class meaning 'a mass is enabled to move via the force of gravity'. Nevertheless, *löttyent* 'spill' involves more than motion by gravity because a different force brings about ballistic motion of a mass. Therefore, it could alternate as members of the *splash*-class meaning 'force is imparted to a mass, causing ballistic motion in a specified spatial distribution along a trajectory'. One could raise an objection that motion does not come into existence in a sufficiently specified way. This objection is contradicted by a well-formed example with the verb *löttyent* 'spill' having the preverb *le-* 'down', which does not influence how the mass moves. Cf. (ii):

(ii) *Az apa-Ø le-löttyent-i kávé-val az asztalterítő-t.*
the father-NOM down-spill-PRS.DEF.3SG coffee-INS the tablecloth-ACC
lit. 'The father spills down the tablecloth with coffee.'

basis[6] rich enough to construe both meanings coming about in syntactic alternations (cf. Iwata 2002; Bibok 2010). The *ken* 'smear' has the following underspecified representation underlying both appearances in (6a) and (6b):[7]

(10) 'X causes a mass Y to move onto a surface Z, **and** X causes a surface Z to be covered partially or totally with a mass Y' (Bibok 2014: 65).

The two constructional meanings of *ken* 'smear' in (6) equal one or another profiled part of the description of the complex event in (10). When a mass is focused, the constructional meaning corresponds to the part of (10) which is before *and,* i.e., 'X causes a mass Y to move onto a surface Z', expressed in (6a). However, when a surface is profiled, the constructional meaning expressed in (6b) is 'X causes a surface Z to be covered partially or totally with a mass Y', i.e., the fragment of (10) after the conjunction *and.* If a verb, e.g., *löttyent* 'spill', does not have an underspecified representation similar to (10), then it cannot occur in the locative alternation (cf. (ib) in Footnote 5).

The second alternation illustrating different approaches is the manner of motion versus directional motion alternation[8] in (11).

(11) (a) *A labda-Ø a barlang-ban úsz-ik.*
the ball-NOM the cave-INE float-PRS.INDF.3SG
'The ball is floating in the cave.'

(b) *A labda-Ø a barlang-ba úsz-ik.*
the ball-NOM the cave-ILL float-PRS.INDF.3SG
'The ball is floating into the cave.'

The polysemy of *úszik* 'float' shown in (11) (cf. Ladányi 2007: 214–215) can be treated by **a lexical rule** in (12).

(12) A verb may take a directional argument if it denotes a manner of motion (Komlósy 1992: 355).

On the basis of Pustejovsky's (1995: 125–126) version of **the constructional approach**, the polysemy 'manner of motion' versus 'directional motion' of *úszik*

[6]It is important to emphasize that such a basis is not considered a derivational basis. Rather an underspecified lexical meaning and constructional meanings are related in a sense that they are compatible with each other, or, put it differently, they can be joined.

[7]In a more precise formulation, the first argument of the cause is not simply an agent but an event such that *X* acts (cf. Bibok 2010: 273). Nevertheless, for the time being this does not matter while in Sect. 3.3 below we need that fuller form of a lexical-semantic representation.

[8]For the description of the alternation, see Levin 1993: 105–106.

'float' can be explained in the following way. The verb *úszik* 'float' has a single meaning in the lexicon that consists in the manner of motion, expressed in (11a) above. The meaning 'move in some direction in some manner' in (11b) does not belong to *úszik* 'float' itself, but to the phrase including the given verb and the inflected noun. This second, more complex meaning cannot be derived from the constituent parts of the phrase by means of a standard rule of composition. It has to be assumed that the inflected noun also behaves as a functor (or predicate) with respect to *úszik* 'float'. Therefore, the meaning of the phrase *a barlangba úszik* 'is floating into the cave' is constructed by a mechanism that considers several constituents functors in a simple construction. Such a mechanism is called co-composition in Pustejovsky's (1995) Generative Lexicon Theory.

At the same time, in both frameworks based on lexical rules and constructions, a separate treatment is needed for following cases. Only some of those verbs which denote a manner of motion of inanimate objects whose movement can be caused by external effects are suitable for designating a directional motion (Komlósy 2000: 257). Compare, for example, *pattog* 'bounce' and *inog* 'wobble' in (13) and (14), respectively.

(13) (a) *A labda-Ø a fal-Ø mellett pattog-Ø.*
the ball-NOM the wall-NOM by bounce-PRS.INDF.3SG
'The ball is bouncing by the wall.'

(b) *A labda-Ø a fal-Ø mellé pattog-Ø.*
the ball-NOM the wall-NOM to bounce-PRS.INDF.3SG
'The ball is bouncing to the wall.'

(14) (a) *A szék-Ø a fal-Ø mellett inog-Ø.*
the chair-NOM the wall-NOM by wobble-PRS.INDF.3SG
'The chair is wobbling by the wall.'

(b) **A szék-Ø a fal-Ø mellé inog-Ø.*
the chair-NOM the wall-NOM to wobble-PRS.INDF.3SG
'The chair is wobbling to the wall.'

The third, **lexical-constructional**, analysis departs from an assumption that the directional argument is substituted for the locative one (Bibok 2010: 279–283), unlike the lexical rule and constructional conceptions, according to which the verb *úszik* 'float' in directional use has more arguments than the manner of motion verb (cf. also: Levin 1993: 264–267). As to the underspecified meaning representation embracing both constructional meanings, it is built on the semantic relationship between locative and directional arguments. The place of the floating ball has an 'in' relation (expressed by the inflection *-ban* in (11a)) to the place of the reference entity denoted by the inflected noun *barlangban* 'in cave'. The end point of the floating ball is nothing other than the end of a path of floating, i.e., the place that the ball occupies moving throughout a path of floating and that has an 'in' relation

(expressed by the inflection *-ban*) to the place of the reference entity. In a more fine-grain analysis, directed motion should not be limited to reaching the end of a path. For instance, a path on that an object moves may have its final goal outside the path itself, cf.: *A labda a barlang felé úszik* 'The ball floats toward the cave'. But all such cases of motion involve a path having some direction, whose final part, in turn, is not necessarily profiled (Bibok 2010: 282). As for the meanings of the locative and directional arguments, they share a common part, namely, the relation of the place occupied by the ball to another place. Nevertheless, their difference consists in that the directional argument includes something more, namely, that the place of the ball belongs to a path with a particular direction. Rewording floating as moving in a particular manner and generally symbolizing the relation between places of the ball and the reference entity as *α,* we can provide an underspecified meaning representation (Bibok 2010: 282, where it is also formulated in a formal semantic metalanguage):

(15) 'X moves in a particular manner such that X's place (that belongs to a path with a particular direction) has relation α to the place of the reference entity'.

The underspecified meaning representation in (15)—through its fragment in round brackets—explains the alternation between locative and directional arguments. The optional fragment is only activated in one of the two constructional meanings, namely, in the directed motion sense, which appears with a directional argument.

If in its representation a verb's meaning does not contain the bracketed fragment of (15), i.e., 'that belongs to a path with a particular direction', then that verb cannot take part in the manner of motion versus directional motion alternation as attested in (14b) above.[9]

[9]A reviewer of my paper claims that according to his/her informants the status of (14b) can become grammatical from ungrammatical in the context of a fairy story. However, I do not think that it is the case. The verb *inog* 'wobble' can denote no directional motion but only a (manner of) motion of position changed even though a metaphorical extension comes about (see also the corresponding lexical item in Bárczi and Országh 1959–1962 as well as in Pusztai 2003). Nevertheless, *billeg* 'rock' is another case. Consider (i).

(i)	*A*	*szék-Ø*	*billeg-Ø*	*az*	*egyenetlen*	*talaj-on.*
	the	chair-NOM	rock-PRS.INDF.3SG	the	uneven	ground-SUP

'The chair is rocking on uneven ground.'

The verb *billeg* 'rock' can be used with a directional argument if it expresses someone's (or, perhaps, an animal's) walking swinging slightly from side to side as in (ii) (cf. Bárczi and Országh 1959–1962 as well as Pusztai 2003).

3 Towards a Novel Analysis of the Instrument–Subject Alternation

3.1 Data and Earlier Proposals

Let us return to the instrument–subject alternation. Following **the constructional analysis** of *ken* 'smear' presented in Sect. 2, it could be proposed that an argument fulfills either an instrument or an agentive role with the verbs in (1)–(3), which—for the sake of convenience—are repeated here as (16)–(18).

(16) (a) *Rita-Ø* *betör-te* *egy* *hajszárító-val* *az* *ablak-ot.*
Rita-NOM break-PST.DEF.3SG a hair.dryer-INS the window-ACC
'Rita broke the window with a hair dryer.'

(b) *A* *hajszárító-Ø* *betör-te* *az* *ablak-ot.*
the hair.dryer-NOM break-PST.DEF.3SG the window-ACC
'The hair dryer broke the window.'

(17) (a) *Rita-Ø* *megszárít-otta* *egy* *hajszárító-val* *az* *ablak-ot.*
Rita.NOM dry-PST.DEF.3SG a hair.dryer-INS the window-ACC
'Rita dried the window with a hair dryer.'

(b) *A* *hajszárító-Ø* *megszárít-otta* *az* *ablak-ot.*
the hair.dryer-NOM dry-PST.DEF.3SG the window-ACC
'The hair dryer dried the window.'

(ii) *A* *terhes* *asszony-Ø* *a* *fal-Ø* *mellé* *billeg-Ø.*
the pregnant woman-NOM the wall-NOM to walk-PRS.INDF.3SG
'The pregnant woman is walking (swinging slightly from side to side) to the wall.'

It is just the sense that may be extended by the metaphorical way of personification, e.g., of a chair, in a fairy tale. Thus, one gets an interpretable utterance even with an inanimate subject. Consider (iii).

(iii) *A* *szék-Ø* *a* *fal-Ø* *mellé* *billeg-Ø.*
the chair-NOM the wall-NOM to walk-PRS.INDF.3SG
'The chair is walking (swinging slightly from side to side) to the wall.'

(18) (a) *Rita-Ø megrak-ta egy targoncá-val a teherautó-t.*
Rita-NOM load-PST.DEF.3SG a forklift-INS the truck-ACC
'Rita loaded the truck with a forklift.'

(b) *A targonca-Ø megrak-ta a teherautó-t.*
the forklift-NOM load-PST.DEF.3SG the truck-ACC
'The forklift loaded the truck.'

Consequently, a constructionist would state that the hair dryer in (16a) and (17a) as well as the forklift in (18a) count as instruments while the hair dryer in (16b) and (17b) as well as the forklift in (18b) function as agents.[10] However, according to another analysis (Levin 1993: 80–81) the instrument role remains unchanged in both syntactic positions even though the verbs are found with one fewer noun phrase in one variant than in the other. Then the possibility of the instrument–subject alternation depends on **the type of instruments**. In (16a), (17a) and (18a), the instruments are intermediary, hence the alternation at stake emerges as attested by the corresponding b-sentences. If instruments are facilitating, or enabling, then, on the contrary, they cannot appear as subjects. Consider once again (4) and (5), which are repeated here as (19) and (20).

(19) (a) *Rita-Ø felmos-ta egy felmosórongy-gyal a padló-t.*
Rita-NOM wash-PST.DEF.3SG a floor-cloth-INS the floor-ACC
'Rita washed the floor with a floor-cloth.'

(b) **A felmosórongy-Ø felmos-ta a padló-t.*
the floor-cloth-NOM wash-PST.DEF.3SG the floor-ACC
'The floor-cloth washed the floor.'

(20) (a) *Rita-Ø felsöpör-te egy söprű-vel a padló-t.*
Rita-NOM sweep-PST.DEF.3SG a broom-INS the floor-ACC
'Rita swept the floor with a broom.'

(b) **A seprű-Ø felsöpör-te a padló-t.*
the broom-NOM sweep-PST.DEF.3SG the floor-ACC
'The broom swept the floor.'

The floor-cloth in (19a) and the broom in (20a) function as facilitating instruments. Thus, the adverbials expressing them cannot syntactically alternate. Following Levin (1993: 80), one can conclude that instruments turn up as subjects in the case of intermediary instruments but not in the case of facilitating ones.

[10]For an argumentation in favor of instruments that become agents, see Schlesinger 1989.

Dudchuk (2007) formalizes Levin's (1993) idea about facilitating and intermediary instruments in terms of **verbal classes** which go back to Rappaport Hovav and Levin's (1998) distinction of manner and result verbs. In Dudchuk's view, the former (e.g., Russian *vymyt'* 'wash' and Hungarian *felmos* 'wash') are compatible with facilitating instruments while instruments of result verbs (e.g., Russian *razbit'* 'break' and Hungarian *betör* 'break') are intermediary. Only result verbs allow the instrument–subject alternation, i.e., syntactic constituents with an instrument semantic role appearing as subjects instead of agentive subjects.

However, independently of classifying verbs into manner or result groups, the same verb can have both kinds of instruments but only intermediary instruments occur in the instrument–subject alternation. The case when a result verb takes not only an intermediary but also a facilitating instrument can be illustrated by the examples with *megrak* 'load'. This verb appears with an intermediary instrument, for instance, in (18a) above, which alternates with (18b). At the same time, (21a) contains a facilitating instrument, which does not allow the instrument–subject alternation as (21b) indicates.[11]

(21) (a) *Rita-Ø* *megrak-ta* *egy* *villá-val* *a* *teherautó-t.*
Rita-NOM load-PST.DEF.3SG a pitchfork-INS the truck-ACC
'Rita loaded the truck with a pitchfork.'

(b) **A* *villa-Ø* *megrak-ta* *a* *teherautó-t.*
the pitchfork-NOM load-PST.DEF.3SG the truck-ACC
'The pitchfork loaded the truck.'

In (19) above a facilitating instrument appearing with the manner verb *felmos* 'wash' does not license the alternation at issue. However, a manner verb can also take an intermediary instrument and the alternation does emerge. Consider (22).

(22) (a) *Rita-Ø* *felmos-ta* *egy takarítógép-pel* *a* *padló-t.*
Rita-NOM wash-PST.DEF.3SG a cleaning.machine-INS the floor-ACC
'Rita washed the floor with a cleaning machine.'

(b) *A* *takarítógép-Ø* *felmos-ta* *a* *padló-t.*
the cleaning.machine-NOM wash-PST.DEF.3SG the floor-ACC
'The cleaning machine washed the floor.'

A complex verb, i.e., a verb with both manner and result components (cf. Rappaport Hovav and Levin 1998: 101, Footnote 3), shows the same pattern as the above manner and result verbs separately. The verb *kiás* 'dig' may occur with both

[11] In connection with such an example as (21b), Levin (1993: 80) noted that the alternation depends not only on the verb but also on the choice of the instrument.

facilitating and intermediary instruments (see (23a) and (24a), respectively) but only the latter can be used as a subject instead of an agent (cf. (23b) vs. (24b)).

(23) (a) *Rita-Ø* *kiás-ott* *egy* *lapát-tal* *egy* *árk-ot.*
Rita-NOM dig-PST.DEF.3SG a shovel-INS a trench-ACC
'Rita dug a trench with a shovel.'

(b) **A* *lapát-Ø* *kiás-ott* *egy* *árk-ot.*
the shovel-NOM dig-PST.DEF.3SG a trench-ACC
'The shovel dug a trench.'

(24) (a) *Rita-Ø* *kiás-ott* *egy* *exkavátor-ral* *egy* *árk-ot.*
Rita-NOM dig-PST.DEF.3SG a excavator-INS a trench-ACC
'Rita dug a trench with an excavator.'

(b) *Az* *exkavátor-Ø* *kiás-ott* *egy* *árk-ot.*
the excavator-NOM dig-PST.DEF.3SG a trench-ACC
'The excavator dug a trench.'

3.2 *An Interim Summary and the Solution Needed, or Where We Are and Where to Go Next*

Since Dudchuk's (2007) proposal based on manner and result verbs does not seem to be suitable to account for the instrument–subject alternation, we face the issue of distinction concerning facilitating and intermediary instruments once again. But what are these instruments like? Furthermore, as Levin (1993: 80) says, the alternation depends on two factors, namely, on the verb itself and the choice of the instrument. Can they be reduced to a single factor? If we take into consideration that one and the same verb takes both kinds of instruments, a candidate of such a single factor should necessarily be the verb itself, more precisely, the meanings of the verb. In this case the two kinds of instruments only follow from the meanings of the verb, or to formulate it in an even more appropriate way with respect to the evidence of the general discussion of syntactic alternations in Sect. 2: from **an underspecified meaning representation** of the verb.[12]

[12]It is worth noting that if, in accordance with Schlesinger's (1989) proposal, an argument fulfills either an instrument or an agentive role, the issue is the same as with the two types of instruments. The reason why the latter distinction has to be preferred will be clear when we realize in the course of the lexical-semantic analysis below how closely semantic roles are connected to the meaning structure of verbs.

3.3 *Building up the Lexical-Semantic Representation Wanted*

A lexical-semantic representation of verbs is partly[13] composed by means of primitive predicates. The common meaning of verbs under discussion can be depicted schematically as in (25).[14]

(25) (a) 'the event "X acts such that X uses Z"
causes
the event "Y begins to be in a state"'

(b) [[[x ACT] : [x USE z]] CAUSE [BECOME [y STATE]]]

Although manner verbs are not characterized by a (specific) result state (Rappaport Hovav and Levin 1998), they do have a certain underspecified state indicating that *Y* underwent some change (cf. also Koenig et al. 2008: 190, 208).

Furthermore, it is necessary to assume two kinds of causation. One is a component which is generally having been used in lexical-semantic representations. It also figures in (25b) but with a first argument of the event(uality) type (cf. Footnote 3):

(26) [e_1 CAUSE e_2], where the variables e_1 and e_2 stand for event(ualitie)s.

The other is a new variant of causation introduced by Koenig and his colleagues (Koenig et al. 2008). This is a weaker notion, i.e., helping and, what is more, it is **pragmatically** oriented.

(27) causation as helping (Koenig et al. 2008: 214)
"An eventuality e_1 helps the occurrence of token e_2 of the event category C iff
(i) there is an ordering of tokens of C along a **pragmatically** defined scale (ease of performance, how good the resulting state is, fewer unwelcome "side effects"); and
(ii) e_1 caused the token e_2 of C to be higher on that ordering than it would otherwise have been."

[13]In addition to primitive predicates, there is another kind of meaning elements, namely, encyclopedic descriptions in the form of prototypes and lexical stereotypes, which can be left out of consideration from the present point of view. For such complex lexical-semantic representations, see, e.g., Bibok 2016a.

[14]Despite the fact that in (25a) the verb *begin* figures for the sake of naturalness of wording the meaning description, the formal metalinguistic predicate suitable to designate the coming into existence of a change of state is BECOME. The latter has a single propositional argument, unlike the agentive *begin.* For more details, see Bibok 2016b.

From the point of view of meaning representations of verbs in instrument–subject alternation, the following three variables seem to be relevant as well.

(28) $CAUSE_{\alpha}$ = {(26), (27)}, i.e., the variable α ranges over the two kinds of causation.

(29) z_{β} = {intermediary instrument, facilitating instrument}, i.e., the variable β ranges over the two kinds of instruments.

(30) γ = {+, –}, the two possible values of the variable γ are "+" and "–". Then the formula ($_{\gamma}$[x ACT] : [x USE) expresses that the optional fragment in round brackets is present in a representation if γ = +, and absent from it if γ = – (cf. Bibok 2016b).

With the variables introduced in (28)–(30) in mind, now—instead of (25b)—another version of the common lexical-semantic representation of verbs with an instrument argument can be put forward. Consider (31).

(31) [**($_{\gamma}$[[x ACT] : [x USE)** z_{β} **($_{\gamma}$])** $CAUSE_{\alpha}$ [BECOME [y STATE]]]

Realize that the formula in (31) is an underspecified representation because of its optional fragment in round brackets and different variables α, β and γ. Such **underspecificity** is of crucial importance in order to account for the instrument–subject alternation. The following conditions attached to (31) explain the occurrence or non-occurrence of the alternation at issue.

(32) (a) If $CAUSE_{\alpha}$ = (26), i.e., [e_1 CAUSE e_2], then z_{β} = intermediary instrument.

(b) If $CAUSE_{\alpha}$ = (27), i.e., causation as helping, then z_{β} = facilitating instrument.

(c) If z_{β} = intermediary instrument, then $\gamma \in$ {+, –}.

(d) If z_{β} = facilitating instrument, then γ = +.

Conditions (32a) and (32b) connect the two types of instruments to the two types of causation: intermediary instruments to [e_1 CAUSE e_2] in (26) and facilitating (enabling) instruments to causation as helping in (27). In other words, the two types of instruments depend on the two types of causation (but in the latter respect a verb does not have to be specified, cf. (31)). However, it is important to recall that both types of causation rest upon the same causing event including someone's action and use of something. In terms of (31), the causing event consists of the predicates ACT and USE, whose first argument is considered playing the agentive role while the

second argument of USE bears the instrument role.[15] Condition (32c) states that in the case of an intermediary instrument the optional fragment in round brackets in (31) can be present or absent, hence, an agentive subject can be present or absent. In the latter option an argument with an instrument role may appear as a subject instead of an agentive subject. However, an agentive subject does not disappear entirely, but she is always present in the semantic background, formally speaking: she still figures as an existentially bound variable.[16] Finally, condition (32d) guarantees that in the case of a facilitating instrument the optional fragment that encodes the presence of an agentive subject cannot be omitted.

Consequently, the third condition in (32c) formulates the possibility of the instrument–subject alternation. The verb **whose meaning** fits the given requirement can alternate: **its argument with an instrument role** may be expressed syntactically not only as an adverbial but also as a subject. As to the constraint that prohibits the instrument–subject alternation, it can be found in (32d). Since the optional fragment has to be present, the alternation under discussion cannot emerge.

4 Further Issues of the Instrument–Subject Alternation

It is also important to note that the future investigation of the instrument role needs paying attention to its further aspects. On the one hand, one should take into account that although in the literature the argument structure change, or the valence change, is mentioned, in some examples (see Levin 1993: 80; Dudchuk 2007: 505;

[15]It is obvious that only such a semantic situation is relevant to the instrument–subject alternation. Therefore, it is not necessary to deal with causing events including natural forces. For other semantic situations that can be expressed as causation, (see Talmy 2000: 471–549). Nevertheless, no types of causation are distinguished along the types of instruments neither along the dichotomy of agents and natural forces.

[16]What is more, the predicates ACT and USE are implicitly present because **on the basis of our world knowledge** we are aware of the fact that it is not an object with an instrument role itself that causes the change of state but an event consisting of somebody's use of an instrument (Bibok 2008: 64). With this proviso in mind, one should judge the acceptability of examples with an instrumental subject. In addition, judgments may vary across speakers from not completely acceptable to probably or fully acceptable, depending on how complex the result state is. Cf. (3b) repeated here as (i), which some speakers including one of the reviewers seem to disfavor, and its modified version in (ii):

(i) *A* *targonca-Ø* *megrak-ta* *a* *teherautó-t.*
the forklift-NOM load-PST.DEF.3SG the truck-ACC
'The forklift loaded the truck.'

(ii) *A* *targonca-Ø* *fel-rak-ta* *a* *ládá-t* *a* *teherautó-ra.*
the forklift-NOM up-load-PST.DEF.3SG the case-ACC the truck-SUB
'The forklift loaded the case onto the truck.'

Koenig et al. 2008: 198, among others) the constituent considered a facilitating instrument **does not count as an argument** but an adjunct because it does not realize a semantic argument syntactically. Let us take (33).

(33) (a) *Rita-Ø* *egy* *szívószál-lal* *isz-sza* *a* *tej-et.*
Rita-NOM a straw-INS drink-PRS.DEF.3SG the milk-ACC
'Rita is drinking milk with a straw.'

(b) **A* *szívószál-Ø* *isz-sza* *a* *tej-et.*
the straw-NOM drink-PRS.DEF.3SG the milk-ACC
'The straw is drinking milk.'

Since—as a result of the absence of the predicate USE—the lexical-semantic representation of the verb *iszik* 'drink' does not contain an argument with an instrument role (Bibok 2008: 61; Koenig et al. 2008: 197–199), the noun with the case inflection *-vAl,* i.e., *szívószállal* 'with straw', certainly becomes a constituent of a sentence as an adjunct.

On the other hand, all examples with instrumental subjects in the present paper denote events. However, there seems to be another kind of the instrument–subject alternation (cf. Bibok 2008: 63–65). Consider (34).

(34) (a) *Rita-Ø* *egy* *zsebkés-sel* *vág-ja* *a* *kartonpapír-t.*
Rita-NOM a penknife-INS cut-PRS.DEF.3SG the pasteboard-ACC
'Rita is cutting pasteboard with a penknife.'

(b) *A* *zsebkés-Ø* *vág(-ja* *a* *kartonpapír-t).*
the penknife-NOM cut-PRS.DEF.3SG the pasteboard-ACC
'The penknife cuts (pasteboard).'

The verb *vág* 'cut' in (34b) has a generic modal meaning which can be given in a schematic formulation as in (35):[17]

(35) 'there is a property such that it is possible for an instrument (used by anyone) to V (something)'.

The formula in (35) is closely similar to the paraphrase of a type of middles that is differentiated from event-like middles by Ackema and Schoorlemmer (2006). To my best knowledge, however, the distinction between **instrumental subject sentences denoting events and properties** has not been put forward before in the literature.

[17]Realize that the fragment of (35), namely, "used by anyone", also indicates such an instrument which is a necessary participant of the situation denoted by the verb, e.g., *vág* 'cut', and which, thus, has to figure as the second argument of the predicate USE.

5 Conclusions

By way of a summary I mention the following advantageous features of my account of the instrument–subject alternation, which thus exceeds the previous ones in several respects. First, with a **pragmatically** oriented weaker notion of causation in mind (Koenig et al. 2008: 214), a more solid basis is assumed to determine which verbs alternate and which verbs do not. It also determines what instruments count as intermediary instruments, including "machines". Recall that "machines" saved the examples above from being ungrammatical. Those verbs could not occur otherwise in the instrument–subject alternation. However, automata or robots do not seem to be "machines". They function as agents in events rather than as instruments. What plays an instrument role is the entity whose name occupies the position of the second argument of USE. On the level of our encyclopedic knowledge, this is true even in the case when the name of an instrument is filled in a subject position (cf. Footnote 16). Thus, if an adverbial with an instrumental case inflection alternates with a subject, it does not become an agent but remains an instrument (contra Schlesinger 1989).

Second, syntactic alternations, including the instrument–subject alternation, are not accounted for as lexical or constructional phenomena. Rather, they fit a lexical-constructional approach which naturally extends to **lexical pragmatics** (cf. Bibok 2010). Both constructional meanings are grasped through a single lexical-semantic representation underspecified in multiple respects. Moreover, in such a case the issue about the relationship between them does not emerge either (contra Dudchuk 2007).

Consequently, the lexical pragmatic account of the instrument–subject alternation offered in the present paper brings about a previously unknown explanation built from systematically interconnected components. After establishing corresponding verbal meaning representations it can also contribute to the understanding of this syntactic alternation presumably in other languages than Hungarian.

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