

**MODELLING THE SYNTACTIC AMBIGUITY OF
THE ACTIVE VS. PASSIVE IMPERSONAL IN LFG**

Anna Kibort and Joan Maling
University of Oxford Brandeis University

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Abstract

The *passive* construction, one of the most scrutinised across varying theoretical and typological perspectives, sometimes gives rise to disagreements among linguists about the categorisation of particular cases. Based on data from Irish, Icelandic, Kaqchikel, Polish, and Ukrainian, we argue that so-called ‘impersonal passives’ are syntactically ambiguous, and can be interpreted in more than one way, as either passives without a subject or as impersonal actives with a null, unspecified, typically human, subject. Transitive impersonals are a key example: even those governing an accusative object may be categorised as either non-promotional passives or impersonal actives. We offer the first LFG analysis of non-promotional passives, and present a way to model the ambiguity between impersonal passives and active impersonals in LFG using Mapping Theory.

1. Introduction

We argue that subjectless impersonal constructions are in principle syntactically ambiguous, and can be analysed as either a non-promotional passive, or an impersonal active with a null, unspecified subject.¹ Several linguists have observed that an intransitive impersonal (i.e. subjectless) construction is inherently ambiguous (Haspelmath 1990: 35; Maling and Sigurjónsdóttir 2002: 126; Blevins 2003: 481). More surprising is the fact that transitive impersonals are syntactically ambiguous in the same way, as shown by the contrasting syntactic behaviour of the accusative-assigning participial *–no/to* construction in two closely-related Slavic languages, Ukrainian and Polish.²

- (1) a. Polish (Maling and Sigurjónsdóttir 2002, ex. 8b)

Świątynię zbudowano w 1640 roku.
church(F).ACC built-**no** in 1640 year
‘The church was built in 1640.’

- b. Ukrainian (Sobin 1985: 653, ex. 13a)

Cerkvu bulo zbudovano v 1640 roc'i.
church(F).ACC was built-**no** in 1640 year
‘The church was built in 1640.’

Disagreements among linguists about how to analyse such constructions indicate the importance of developing concrete syntactic diagnostics for an active vs. a passive analysis when the direct object shows no signs of promotion to subject, yet there is no

¹ The material in this paper is based in part on work done while the second author was serving as Director of NSF’s Linguistics Program. Any opinion, findings and conclusions expressed in this material are those of the authors, and do not necessarily reflect the views of the U.S. National Science Foundation.

² The following abbreviations are used in glossed examples: ACC = accusative; CONTEMP = contemporaneous; EXPL = expletive; F = feminine; GEN = genitive; IMPERS = impersonal; INST = instrumental; LOC = locative; M = masculine; MH = masculine human; N = neuter; NMH = non-masculine human; NOM = nominative; PART = participle; PL = plural; PST = past; REFL = reflexive; SG = singular; 1 = first person; 3 = third person.

subject argument expressed on the surface. Cross-linguistically, the syntactic presence of an external argument can be detected in standard ways. For example, a syntactically present subject argument licenses binding of lexical anaphors and control of subject-oriented adjuncts, but blocks an agentive *by*-phrase. Furthermore, unaccusative verbs should be able to occur in the construction, typically with the proviso that the verb selects for a human (internal) argument. A syntactically active impersonal construction with an overt grammatical subject, e.g. French *on* or German *man*, exhibits all of these properties; in contrast, the canonical passive construction lacks all of these properties.³

Using these diagnostics, Maling (1993) and Maling and Sigurjónsdóttir (2002: 100–107) contrasted the syntactic properties of the accusative-assigning participial *–no/to* construction in Polish versus Ukrainian. The comparison is summarised in Table 1. This contrast seems puzzling, because in addition to the null subject and non-promoted direct object, both constructions display the same verbal morphology. However, despite their common historical origin, and the shared morphological properties of assigning accusative case and consequent lack of agreement, the Polish and Ukrainian constructions are polar opposites in terms of syntactic behaviour. As Maling and Sigurjónsdóttir document, the Ukrainian *–no/to* construction behaves like a true passive, whereas its Polish counterpart does not (for Polish, see also Kibort 2001; Blevins 2003; Kibort 2004). Note that in addition to the *–no/to* construction, Polish and Ukrainian both have a canonical passive with the expected syntactic properties.

Table 1. Syntactic properties of various constructions in Polish and Ukrainian

syntactic property	Active	Pol/Ukr Passive	Polish <i>–no/to</i>	Ukrainian <i>–no/to</i>
agentive <i>by</i> -phrase	*	ok	*	ok
bound anaphors in object position	ok	*	ok	*
control of subject-oriented adjuncts	ok	*	ok	*
nonagentive ('unaccusative') verbs	ok	*	ok	*

For detailed discussion, see Maling (1993, 2006); Maling and Sigurjónsdóttir (2002: 100–107); Maling and O'Connor (2015), *inter alia*. The take-home lesson from this comparison is that we cannot tell what the syntactic behaviour of a construction is by looking at superficial morphological properties such as case and agreement. Despite their clearly cognate verbal morphology, Polish and Ukrainian have evidently evolved two syntactically distinct versions of what must have been 'the same' construction at some earlier point. The syntactic properties of the Ukrainian *–no/to* construction show that the

³ The dichotomy is not always this clear-cut. For example, in German, impersonal passives allow a *by*-phrase, but also reflexives and reciprocals. Both inherent and noninherent reflexive predicates form impersonal passives (see Plank 1993, and especially Schäfer 2012 for discussion); moreover, at least some unaccusative verbs can form impersonal passives (Primus 2011). A Google search turns up examples like *Es wurde auf beiden Seiten gestorben* 'It was died on both sides' containing the unaccusative verb 'to die'. Clearly further investigation of the lexical restrictions is needed. For Icelandic, see Sigurðsson (1989: 322, fn. 48) and Thráinsson (2007: 266ff).

ability to assign accusative case does not necessarily decide between the two possible analyses (contra Haspelmath 1990: 35; Blevins 2003: 481; Danylenko 2006: 262).

The contrasting syntactic behaviour shows definitively that many of the constructions designated as ‘non-promotional passives’ or ‘transitive passives’ are actually *impersonal actives*, but also that some are indeed passives according to standard diagnostic syntactic properties. Another case of syntactic change is the so-called *autonomous* construction in Irish, which has been described as a non-promotional passive (Stenson 1989; Noonan 1994). However, McCloskey (2007) argues convincingly that ‘the silent subject of an autonomous verb is like an arbitrary subject pronoun, but unlike an implicit agent, in being syntactically active’ (p. 828, fn. 3).

2. The Icelandic ‘New Impersonal’ Construction

A third example of syntactic reanalysis is the New Transitive Impersonal (NTI) construction in Icelandic that has emerged over the past few decades and has occasioned a great deal of disagreement over its categorisation as active or passive. Maling and Sigurjónsdóttir (2002) argue that it is developing into an impersonal active, like the Polish *–no/to* and the Irish autonomous form. However, because the change is ongoing, the evidence is not as categorical as it is for Irish or Polish vs. Ukrainian.

The NTI takes the form in (2); it appears to have a passive participle but differs from the canonical passive in that the verbal object (marked in bold) remains in situ and gets assigned accusative rather than nominative case (if that argument does not bear a lexical case, dative or genitive).

- (2) *Loks var fundið **stelpuna** eftir mikla leit.*
finally was found-N.SG girl.the-F.ACC after great search
‘The girl was finally found after a long search.’ or
‘They finally found the girl after a long search.’

This innovation is a system-internal change that is neither the result of borrowing nor the result of any phonological change or morphological weakening. What exactly is the nature of the change? The analysis of the innovative construction has been the subject of lively debate in recent years; scholars differ in their assessment of whether the NTI is a transitive passive or an active impersonal construction.⁴ Everyone agrees that the postverbal NP in the NTI is an object; the disagreement lies in what is assumed to occupy the syntactic subject position. Under one analysis, the NTI is a *non-promotional passive* resembling the Ukrainian participial *–no/to* construction (Eythórsson 2008), and has an empty subject which might be represented as [e]. Under the alternative analysis, the null subject is *pro_{arb}*, a thematic [+human] subject which can serve as a syntactic binder; i.e. the construction is syntactically *active* like the Polish counterpart (Maling and Sigurjónsdóttir 2002; Maling 2006; Maling and O’Connor 2015).

Icelandic also has a productive impersonal passive of intransitive verbs, which presents an important backdrop to the NTI. The fact that the understood subject of an impersonal passive of an intransitive verb can be interpreted only as a volitional agent (typically human), even if the verb allows inanimate subjects in the active voice, surely

⁴ A good survey of the empirical facts and theoretical issues can be found in Thráinsson (2007: 273–283).

supports the plausibility of the *pro_{arb}* analysis for the New Transitive Impersonal. The subject of the verb *flauta* ‘whistle’ can be many things, including tea kettles or trains, but the impersonal passive *Það var flautað* ‘it_{EXPL} was whistled’ can be understood only as describing human whistlers.⁵

The syntactic characteristics of the NTI have been investigated in two nationwide surveys, the first of which was conducted in 1999–2000 and reported in Maling and Sigurjónsdóttir (2002). A questionnaire was distributed to 1,731 tenth graders (age 15–16) in 65 schools throughout Iceland; this number represents 45% of the children born in Iceland in 1984. More than half of the adolescents in most parts of the country (n = 1475) accepted sentences with an accusative definite postverbal object like the one in (2), with a range between 51%–69%, but only 28% of adolescents in Inner Reykjavík (n = 220) accepted these sentences, and very few of the adult controls (n = 200).

A surprising and unexpected result of the survey came from the adult controls. In spite of their disagreements about the syntactic status of the NTI, all scholars of Icelandic considered traditional impersonal passives of intransitive verbs to be true passives. Thus it was a surprise to discover that about half of the adult speakers in the survey accepted two of the diagnostics for *active* constructions – reflexives and subject-oriented adjuncts – in traditional impersonal passives. An example containing a subject-oriented adjunct is shown in (3) (Maling and Sigurjónsdóttir 2002, ex. 37a).

- (3) *Það var komið skellihlæjandi í tímnn.*
 it_{EXPL} was come-N.SG laughing.out.loud into class
 ‘People came into class laughing out loud.’

Maling and Sigurjónsdóttir (2002: 126) pointed out that ‘the more subject-oriented participles are accepted, the more simple reflexives are accepted’. For adolescents, the correlation was highly significant ($r = 0.433$, $n = 1693$, $p < 0.001$, 2-tailed); for adults the correlation was also highly significant ($r = 0.532$, $n = 199$, $p < 0.001$, 2-tailed) (Maling and Sigurjónsdóttir 2002: 126, fn. 15, ex. 37a). This correlation supports the suggestion that these speakers have a *syntactically active* representation for the traditional so-called ‘impersonal passives’. In contrast, there are other speakers who allow *neither* reflexives *nor* subject-oriented adjuncts; these judgments reflect a *passive* analysis. We take no position on whether the grammar of an individual speaker can have both or only one of the representations. We simply observe that in the aggregate, there is evidence for both grammatical analyses among contemporaneous speakers.

The ongoing syntactic change in Modern Icelandic indicates that native (adult) speakers do not all necessarily come to the same grammatical analysis of every construction; on the contrary, *speakers themselves may come to radically different analyses of the same data*. The readily observable data underdetermines the analysis; it is only by pushing the speaker to judge more complex, or less common (even ‘vanishingly rare’) sentences that we can see the empirical consequences of choosing one syntactic representation over another. Furthermore, as shown by the independent diachronic developments in Polish, Irish and Icelandic, in which a construction with passive morphology has been reanalysed as a syntactically active construction, the morphosyntactic ambiguity of impersonal constructions can be the locus of syntactic change.

⁵ The situation for German and Dutch is more nuanced (see the discussion in Primus 2011). For impersonal passives in Norwegian, see Maling (2006).

3. Kaqchikel

Although we have focused on cases where an apparently passive construction has been reanalysed as an impersonal active, grammatical change can occur in the opposite direction as well (Siewierska 2010, drawing on Broadwell and Duncan 2002). Kaqchikel, an Eastern Mayan language of highland Guatemala, has a variety of passive constructions, including one marked with the suffix *-ki*. The verb in the *ki*-passive shows active morphology, with an active transitive verbal suffix /-Vj/ and the 3rd plural ergative agreement marker *-ki*, as would be appropriate for a transitive verb with an impersonal ‘they’ subject. Broadwell and Duncan (2002) argue that this verb form has evolved into a construction with the syntactic properties of a passive. It can co-occur with an agentive *by*-phrase, which can be singular or plural, and even 1st or 2nd person. But in contrast with the Ukrainian *-no/to* construction, the *ki*-passive is a promotional passive: it is the patient argument and not the agent which has the grammatical properties of a subject, as shown by syntactic tests including the use of subject-oriented adverbials.

Taken together, our exemplars reveal that every possible association between surface morphology and syntactic behaviour is attested cross-linguistically, as shown in Table 2.

Table 2. Mismatch between morphology and syntax

	Active syntax	Passive syntax
Active morphology	French <i>on</i> ; German <i>man</i>	Kaqchikel <i>ki</i> -passive
Passive morphology	Polish <i>-no/to</i> ; Irish autonomous construction	Ukrainian <i>-no/to</i>

In each case that we have discussed above, there are several potential sources of indeterminacy. One is structural: an intransitive impersonal construction is inherently ambiguous (Haspelmath 1990: 35; Maling and Sigurjónsdóttir 2002: 126; Blevins 2003: 481), as are subjectless transitives. As we have seen for Polish, the morphology may be associated historically with a canonical passive even though the syntax indicates an active construction. Because of the inherent morphosyntactic ambiguity, speakers of the same language may construe one of these constructions in different ways, leading to eventual change, as in the Icelandic NTI and in Polish versus Ukrainian.

4. Active impersonal vs. passive impersonal in Mapping Theory (MT)

Mapping Theory is a theory of valency alternations which makes reference to various types of information (see Figure 1). The different levels of representation of a predicate are assumed to be ‘linked’, with different types of rules mapping one level to another. Figure 1 illustrates a system of mappings between the semantic, lexical, and syntactic representations for a ditransitive predicate such as GIVE.

Fig. 1. Semantic and syntactic valency

referents	<ref ₁	ref ₂	ref ₃ >	} SEMANTIC/THEMATIC STRUCTURE
instantiated roles ⁶	<giver	given	givee>	
semantic participants ⁷	< x	y	b >	
dependents of the predicate	<arg ₁	arg ₂	arg ₃ >	LEXICAL VALENCY
grammatical relations	[SUBJ	OBJ	IOBJ]	} SYNTACTIC/FUNCTIONAL SUBCATEGORISATION
syntactic categories	[NP	NP	NP]	

The mappings between the semantic structure and lexical valency are referred to as *participant-to-argument mappings*; the mappings between lexical valency and grammatical relations are referred to as *argument-to-function mappings*. Although these terms imply directionality, the mappings result from static constraints and therefore can be understood to apply in both ‘directions’, i.e. parsing and generation.

4.1. Mapping Theory tools for argument-to-function mappings

A key tool in LFG’s Mapping Theory is the decomposition of basic grammatical functions into features. This proposal was originally based on the observation that in argument alternations the arguments which can be identified via their meaning do not have an unrestricted range of options in mapping to grammatical functions. Rather their options are limited to certain grammatical functions from a particular set (see e.g. Bresnan and Kanerva 1989; Bresnan and Zaenen 1990; also Bresnan 2001: 308).

The present version of the Mapping Theory (as developed in particular in Kibort 2007, 2008, 2013, and 2014) uses the same solution, i.e. decomposes basic grammatical functions into features as in the original LFG proposal. However, drawing from another strand of LFG research (see e.g. the overview in Sadler and Spencer 1998), it recognises that there is a substantial difference between meaning-preserving and meaning-altering argument alternations. While the decomposition of argument functions is suitable to model argument structure operations which do not involve a change of meaning, in order to model any meaning-altering argument structure operations the toolbox of the Mapping Theory has to be extended with additional tools. As neither passivisation nor impersonalisation is a meaning-altering operation, this part of the Mapping Theory will not be discussed here in any more detail, but see Kibort (2007 and further work) for a justification of this approach and an application to a wide range of argument alternations.

Thus, basic argument functions⁸ are not atomic but arise from particular combinations of more primitive features:

⁶ Instantiated roles are specified here only to make the diagram recognisable as an argument structure of the predicate GIVE. The Mapping Theory as proposed here does not need to refer to this level of representation.

⁷ See Kibort (2014) for arguments against using generic semantic roles to model participant-to-argument mappings, and extensive references to other works on this subject.

⁸ See Kibort (2013) for an overview of the reasons for positing a cross-linguistically motivated grammatical function of the secondary object (OBJ_θ). Beside the four basic functions, many LFG

(4)

	[-r]	[+r]
[-o]	SUBJ	OBL _θ
[+o]	OBJ	OBJ _θ

The original LFG interpretation of the features is: [+/-r] thematically (i.e. semantically) restricted; [+/-o] (non)objective. However, in the version of the Mapping Theory assumed here, which preserves a syntactic characterisation of grammatical functions and thereby captures the special status of the secondary object as a ‘non-core objective argument’, the features are interpreted as follows:

- (5) [+o] complements (‘internal arguments’ of the predicate)
 [-o] non-complements (the ‘external’ argument and oblique arguments)
 [-r] core arguments (subject and object only)
 [+r] non-core arguments (all arguments except subject and object)

The core of argument structure is a universally available subcategorisation frame which represents the relative syntactic prominence of the arguments of the predicate. This valency template is fixed and the argument positions are characterised by intrinsic features:

- (6) < arg₁ arg₂ arg₃ ... arg₄ ... arg_n >
 [-o]/[-r] [-r] [+o] [-o] [-o]

The ordering of arguments in (6) corresponds to LFG’s relational hierarchy of syntactic functions, with adjunct being a non-argument function (Bresnan 2001: 96):

- (7) SUBJ > OBJ > OBJ_θ > OBL_θ > COMPL⁹ > ADJUNCT

The relational hierarchy is proposed after Keenan and Comrie’s (1977) Noun Phrase Accessibility Hierachy, presumed to be universal (at least in nominative-accusative systems):

- (8) SUBJ > OBJ > OBJ_θ > OBL > possessor NP > object of comparison

Thus, the ordering of argument positions in (6) also parallels Keenan and Comrie’s accessibility hierarchy, however, while LFG’s relational hierarchy in (7) is based on final grammatical functions, the ordering in (6) is based on MT’s atomic values [+/-r/o].

In the realisation of a particular predicate, the angled brackets contain all and only the selected valency slots for the arguments associated with that predicate, both core and non-core. In other words: predicates do not have to select a contiguous series of arguments. (This can be understood in the sense of the ‘derived arguments’ of Needham and Toivonen 2011, and is a useful generalisation bearing in mind that the distinction

accounts and computational implementations of LFG grammars additionally use COMP and XCOMP for clausal arguments, though some other linguists analyse them as specialised types of the basic grammatical functions (e.g. Zaenen and Engdahl 1994; Alsina, Mohanan and Mohanan 1996; Alsina, Mohanan and Mohanan 2005).

⁹ Here, the label COMPL stands for the whole class of various predicate complements (Bresnan 2001: 96).

between arguments and adjuncts is notoriously difficult to justify, see e.g. Przepiórkowski 1999: Ch. 6-10). For example, in *Both parents cooked supper for the children*, the lexical and syntactic valencies of the predicate can be illustrated as follows:¹⁰

- (9) *cook* < arg₁ arg₂ arg₄ >
 [-o] [-r] [-o]

The mapping of arguments to grammatical functions follows the Mapping Principle in (10) and the Subject Default in (11):

- (10) MAPPING PRINCIPLE
 The ordered arguments are mapped to the available functions compatible with their intrinsic marking.
- (11) SUBJECT DEFAULT
 The first argument compatible with the SUBJ function is mapped to SUBJ.

Note that (10) is a rephrased Mapping Principle. The previous version referred to the ‘Markedness hierarchy’ of syntactic functions read off the diagram in (4). However, the ‘Markedness hierarchy’ turns out to be superfluous. Furthermore, since we no longer consider grammatical functions to be ‘marked’ in the sense originally proposed in Lexical Mapping Theory, the ‘Markedness hierarchy’ is now also unmotivated. Note also that the Subject Default is not equivalent to the Subject Condition assumed in other variants of LFG’s Mapping Theory. Subjectless clauses are permitted (and robustly attested in the world’s languages). Only one SUBJ and one OBJ function are permitted by the valency template in (6); however, multiple secondary objects and oblique arguments are possible and distinguished by their subscripts.

Morphosyntactic operations interfere with the default argument-to-function mapping, but do not affect the lexical or semantic levels of representation of the predicate – that is, they are meaning-preserving (see e.g. Sadler and Spencer 1998). Such results are achieved by the mechanism of increasing markedness which preserves monotonicity (Kibort 2007): a morphosyntactic operation can only restrict an argument by adding a ‘marked’ specification [+r] or [+o] to its syntactic pre-specification. Hence, the available morphosyntactic (i.e. restricting) operations are:

- (12) a. adding the [+r] specification to a [-o] argument;
 b. adding the [+o] specification to a [-r] argument; and
 c. adding the [+r] specification to a [+o] argument.

Each of these operations does not only change the mapping of the grammatical function onto the affected argument, but may also have a knock-on effect on the mapping of grammatical function(s) onto other argument(s).

¹⁰ There is no scope here to discuss the argument/adjunct distinction, but in all examples that follow it is assumed that a non-core semantic participant such as a recipient, instrument, or location, is an argument if it can alternate between an oblique and a core grammatical function.

4.2. The MT model of the morphological impersonal

The morphological impersonal has an argument structure template¹¹ fully specified for grammatical functions as in the active; (13a) illustrates a transitive active, and (13b) an intransitive active:

- (13) a.
$$\begin{array}{ccc} x & & y \\ | & & | \\ \text{PREDICATE}_{\text{active}} \langle \text{arg}_1 & \text{arg}_2 \rangle \\ [-\text{o}]/[-\text{r}] & & [-\text{r}] \\ \text{SUBJ} & & \text{OBJ} \end{array}$$
- b.
$$\begin{array}{ccc} x \\ | \\ \text{PREDICATE}_{\text{active}} \langle \text{arg}_1 \rangle \\ [-\text{o}]/[-\text{r}] \\ \text{SUBJ} \end{array}$$

However, in contrast with the plain active, the morphological impersonal has a ‘suppressed’ covert SUBJ which can be analysed as a PRO (Kibort 2006, 2008); (14a) illustrates a transitive variant of the Polish *-no/to* impersonal, and (14b) an intransitive variant:

- (14) a.
$$\begin{array}{ccc} x & & y \\ | & & | \\ \text{PREDICATE}_{\text{-no/to}} \langle \text{arg}_1 & \text{arg}_2 \rangle \\ [-\text{o}]/[-\text{r}] & & [-\text{r}] \\ \text{SUBJ} & & \text{OBJ} \\ \text{PRO}_{\text{-no/to}} & & \end{array}$$
- b.
$$\begin{array}{ccc} x \\ | \\ \text{PREDICATE}_{\text{-no/to}} \langle \text{arg}_1 \rangle \\ [-\text{o}]/[-\text{r}] \\ \text{SUBJ} \\ \text{PRO}_{\text{-no/to}} \end{array}$$

The introduction of the $\text{PRO}_{\text{-no/to}}$ to express the SUBJ of these predicates is realised by the affix *-no/to*. It is this PRO subject which controls subject-oriented adjuncts and binds anaphors and is interpreted as the highest semantic participant of the event. The highest semantic participant has not been downgraded to an oblique, hence it cannot be expressed in a ‘by-phrase’.

4.3. The MT model of the passive

There appears to be a consensus that passivisation is a meaning-preserving argument alternation, i.e. morphosyntactic, as opposed to morphosemantic.

Morphosyntactic operations interfere with the default argument-to-function mapping, but do not affect the lexical or semantic levels of representation of the predicate. Hence, they do not affect the interpretation of the predicate together with its sets of semantic entailments, or the interpretation of the roles of the semantic participants.¹² They affect only the final mapping of grammatical functions to arguments.

¹¹ An ‘argument structure template’ is understood here as a generalisation over a set of argument structures of particular predicates. A valency template captures a specific way of mapping from semantic participants to syntactic functions which is the same for all predicates in the set. This concept of valency template can be formalised with the use of LFG’s ‘templates’ (Asudeh, Dalrymple and Toivonen 2008, 2013) and implemented in XLE, as shown by Findlay (2014) and Asudeh, Giorgolo and Toivonen (2014).

¹² As a result, passivisation is considered to preserve the truth conditional meaning component of the active. In contrast, morphosemantic alternations always involve some change of meaning, the

‘In general, it is not possible to associate any additional meaning with the passive construction (...), although the overall change in the morphosyntax of the passivized construction usually brings with it at least a shift in the information structure. (...) in [some] cases the passive construction has been co-opted by the grammar to express additional grammatical meanings such as evidentiality (...). However, the typical passive construction is an asemanitic rearrangement of subject/object roles.’ (Spencer 2013: 277)

In Mapping Theory, passivisation is an operation which restricts the first argument pre-specified as [-o] (i.e. an unergative argument) by adding to it the [+r] specification (Kibort 2001, 2004). This way, the argument which by default would map to SUBJ is downgraded to the function of an oblique. If there is a second argument which by default would map to OBJ, it has an opportunity to be promoted to SUBJ. The argument structure template in (15a) illustrates the promotional passive of the transitive, and (15b) the (necessarily non-promotional) passive of the intransitive:

- (15) a.

x	y
arg ₁	arg ₂
[-o]	[-r]
[+r]	
OBL _θ	SUBJ

b.

x
arg ₁
[-o]
[+r]
OBL _θ

Note that oblique agents, by virtue of being obliques, are never obligatory. In some languages they may be dispreferred or even unexpressible.

Sentences (16) and (17) exemplify the Polish transitive passive and intransitive passive, respectively:¹³

- (16) *Pokój był codziennie sprząwany (przez firmę).*
 room(M).NOM was.3SG.M every-day clean.PART.SG.M (by company)
 ‘The room was cleaned every day (by a company).’
- (17) *Było codziennie sprzątane (przez firmę).*
 was.3SG.N every-day clean.PART.SG.N (by company)
 ‘[It] was cleaned every day (by a company). /
 There was cleaning every day (by a company).’

Although it is intuitively obvious that (17) is a subjectless passive, there do not seem to be any convenient syntactic tests to prove it. However, this conclusion can be drawn from a particular combination of facts that hold simultaneously of this construction: (i) there is no overt subject, and no positive evidence for a covert syntactic subject; (ii) just like in the transitive personal passive, the agent can be expressed in this construction through an oblique ‘by’-phrase which is not a subject; (iii) just like in the transitive

minimal one being some implications which vary between the two alternants (for a compatible view, see Spencer 2013: 294–295 and the reference therein to Pinker 1989).

¹³ Out of context, the interpretation of (17) is ambiguous between an intransitive passive (without a subject) and a transitive passive with an omitted *pro*-drop subject, e.g. a dropped 3SG.N noun such as *miejsce* ‘place(N).NOM’ or *pomieszczenie* ‘room(N).NOM’. We are concerned here with the intransitive (subjectless) variant.

personal passive, the agentive oblique – if present – controls adjuncts and anaphors which in the active are controlled by the agentive subject. The pair of sentences in (18) shows that it is the oblique agent in the transitive personal passive, not the subject, which controls the so-called ‘subject-oriented’ adjuncts; the pair of sentences in (19) shows the same behaviour in the passive of the intransitive:

- (18) a. **Pokój był sprzątny oglądając telewizję.*
 room(M).NOM was.3SG.M clean.PART.SG.M watch.PART_{CONTEMP} television(F).ACC
 ‘The room was cleaned while watching television.’
- cf. b. *Pokój był sprzątny przez nich oglądając telewizję.*
 room(M).NOM was.3SG.M clean.PART.SG.M by them watch.PART_{CONTEMP} television(F).ACC
 ‘The room was cleaned by them while watching television.’
- (19) a. **Było sprzątnane oglądając telewizję.*
 was.3SG.N clean.PART.SG.N watch.PART_{CONTEMP} television(F).ACC
 ‘There was cleaning while watching television.’
- cf. b. *Było sprzątnane przez nich oglądając telewizję.*
 was.3SG.N clean.PART.SG.N by them watch.PART_{CONTEMP} television(F).ACC
 television(F).ACC
 ‘There was cleaning by them while watching television.’

The Mapping Theory predicts that the promotional transitive passive, such as the one modelled in (15a), is not the only passive of the transitive that is available. Recall from (12) that all available morphosyntactic (i.e. restricting) operations are:

- (20) a. adding the [+r] specification to a [-o] argument;
 b. adding the [+o] specification to a [-r] argument; and
 c. adding the [+r] specification to a [+o] argument.

Passivisation is an example of an operation which **adds the [+r]** specification to a [-o] argument. In this situation, by default, the second argument pre-specified as [-r] can map to SUBJ. However, another operation may coincide with passivisation: **adding the [+o]** specification to the second, i.e. [-r], argument will force it to be mapped to OBJ and prevent its promotion to SUBJ. Thus, a combination of ‘passivisation’ and ‘object preservation’ – simultaneous when viewed from the synchronic perspective – produces a variant of the passive which preserves the structural object:

- (21)
- | | | |
|---------------------------------------|------------------|--------------------|
| | <i>x</i> | <i>y</i> |
| | | |
| PREDICATE _{pass+obj.pres.} < | arg ₁ | arg ₂ > |
| | [-o] | [-r] |
| | [+r] | [+o] |
| | OBL _θ | OBJ |

The argument structure template in (21) is a model of a non-promotional, impersonal passive of the transitive. This construction allows an oblique agent and does not occur with unaccusatives. As in the ‘ordinary’ impersonal passive of the intransitive, there is no syntactic subject to bind and control, and the verb has a non-agreeing form.

Sentences (22 a–b) exemplify the Ukrainian *-no/to* construction, which as discussed in section 1, is a non-promotional transitive passive (see Table 1):

(22) Ukrainian (Lavine 2005: 109)

- a. *Nemovlja bulo znajdeno u košyku likarjami.*
 baby.ACC was found-NO in basket doctors.INST
 ‘A baby was found in a basket by doctors.’
- b. *Inozemcja bude posadženo do v’jaznyci hlavoju urjadu.*
 foreginer.ACC will-be placed-NO to prison head.INST government
 ‘A foreigner will be put in prison by the head of government.’

Like a (non-promotional) passive of the intransitive, the non-promotional passive of the transitive in Ukrainian does not have a subject that could control subject-oriented adjuncts or bind anaphors.

5. Accounting for ambiguity: syntactic valency frames of predicates

Although the Polish *-no/to* construction is unarguably active and the cognate Ukrainian *-no/to* construction is unarguably passive, the ‘new impersonal’ construction in Icelandic discussed in section 2 reflects an ongoing change and appears to be in transition from passive to active. The results of the two nationwide surveys, reported in Maling and Sigurjónsdóttir (2002) and Thráinsson et al. (2015), demonstrated clearly that this change was innovated by children. We have argued that what allows this change must be an inherent property of the grammar: non-promoting passives of both intransitives and transitives are inherently ambiguous between a passive and an active impersonal interpretation.

Mapping Theory provides us with argument structure templates which capture the relation between the semantics and the syntax in different constructions. However, if different constructions are not distinguished by their realisation (morphology), surface syntax produces syntactic valency frames which may fit more than one argument structure template, that is, may be a manifestation of more than one distinct construction.

Let us first consider what kinds of syntactic valency frames can be produced by the grammar in a language which has any of the following constructions and their variants: a promotional passive of the transitive (= ‘passive’), a non-promotional passive of the transitive (= ‘passive + object preservation’), a passive of the intransitive (= ‘passive’), a transitive active impersonal (= ‘impersonal’) and an intransitive active impersonal (= ‘impersonal’). The following is a list exemplifying syntactic valency frames of all these kinds of construction. In the interest of clarity, we have limited the examples to those valency frames which contain up to two arguments, and where the arguments express only the two highest semantic participants (furthermore, we have resorted to the traditional semantic role labels in order to facilitate the reading of the examples):

(23)	a. transitive	b. intransitive
	PREDICATE _{passive} ⟨ SUBJ _{pat/th} OBL _{ag} ⟩	PREDICATE _{passive} ⟨ OBL _{ag} ⟩
	PREDICATE _{passive} ⟨ SUBJ _{pat/th} ⟩	PREDICATE_{passive} ⟨ ⟩

	PREDICATE _{pass+obj.pres.} ⟨ OBJ _{pat/th} OBL _{ag} ⟩	PREDICATE _{passive} ⟨ OBL _{ag} ⟩
	PREDICATE_{pass+obj.pres.} ⟨ OBJ_{pat/th} ⟩	PREDICATE_{passive} ⟨ ⟩

	PREDICATE_{impers} ⟨ OBJ_{pat/th} ⟩	PREDICATE_{impers} ⟨ ⟩

It is important to note it is the argument structure templates which enable us to interpret which semantic participant is expressed through which grammatical function for a given predicate.

As should now be clear, in a language which uses the same morphology for any of these constructions (the passive, the passive with a preserved object, and the impersonal), certain syntactic frames with which the predicates in this language are found are necessarily ambiguous. The ambiguous frames are rendered in bold in (23).

One of the ambiguities lies in the syntactic frame of intransitive predicates with no argument present (i.e. the empty frame): this syntactic frame is the result of both the passivisation of an intransitive predicate and the impersonalisation of an intransitive predicate.

The other ambiguity lies in the syntactic frame of transitive predicates with only one argument present, a direct object expressing a patient/theme: this syntactic frame is the result of both the impersonalisation of a transitive predicate and the non-promotional passivisation of a transitive predicate.

If both the active impersonal and the non-promoting passive co-exist in a language and share the same realisation – for example due to changing from one construction to the other – the surface syntax of both unergative transitive and unergative intransitive predicates is identical for the two constructions when the oblique agent is not expressed overtly. Compare:

(24)	a. transitive	b. intransitive
	PREDICATE _{pass+obj.pres.} ⟨ OBJ _{pat/th} OBL _{ag} ⟩	PREDICATE _{passive} ⟨ OBL _{ag} ⟩
	PREDICATE_{pass+obj.pres.} ⟨ OBJ_{pat/th} ⟩	PREDICATE_{passive} ⟨ ⟩

	PREDICATE_{impers} ⟨ OBJ_{pat/th} ⟩	PREDICATE_{impers} ⟨ ⟩

Furthermore, even in a language with the familiar (i.e. promoting) passive, when the passive is applied to an unergative intransitive predicate, it results in a surface valency frame identical to the active impersonal of the intransitive when the oblique agent is not expressed. Compare:

(25) a. transitive	b. intransitive
PREDICATE _{passive} ⟨ SUBJ _{pat/th} OBL _{ag} ⟩	PREDICATE _{passive} ⟨ OBL _{ag} ⟩
PREDICATE _{passive} ⟨ SUBJ _{pat/th} ⟩	PREDICATE_{passive} ⟨ ⟩
...	...
PREDICATE _{impers} ⟨ OBJ _{pat/th} ⟩	PREDICATE_{impers} ⟨ ⟩
...	...

As noted earlier, the contrasting syntactic behaviour of the Polish vs. Ukrainian – *no/to* constructions shows that an accusative object is not sufficient to distinguish between the active impersonal and the passive impersonal. The variant of Mapping Theory employed here captures correctly both the different syntactic properties of the constructions in question and the inherent ambiguity of their shared surface syntax.

In the face of syntactic ambiguity it is not surprising that a homophonous non-promoting passive and an active impersonal, as illustrated in (24), may co-exist in a language for a long time. The presence of an oblique agent does distinguish between the active impersonal (which should not allow an oblique agent) and the impersonal passive (which should allow it), but obliques do not have to be expressed and oblique agents are generally not frequent.

6. Modelling grammatical change with Mapping Theory

In section 4 we showed different representations for the impersonal passive and the active impersonal, accounting for their different syntactic behaviour with respect to the subject. In section 5 we showed that the surface syntax of both constructions gives rise to ambiguity which underdetermines the analysis of these constructions. In this section we show how the Mapping Theory can handle the process of grammatical change from the impersonal passive to the active impersonal, and in the opposite direction – with both directions of grammatical change attested, as we will exemplify below.

6.1. Grammatical change from the impersonal *passive* to the *active* impersonal

The oblique agent is a defining property of the passive construction. Therefore, in a language in which there is a way of expressing agents as obliques, the presence of an oblique agent in a syntactic valency frame of a predicate can be taken to indicate that the construction is passive.

However, in the process of grammatical change from the impersonal passive to the active impersonal – as has occurred in the history of Polish, Irish, and is currently occurring in Icelandic – the omission of the oblique agent allows the agent to be re-interpreted as a PRO subject.

In a language with the promoting passive, the locus of the change is the impersonal passive of the intransitive. In principle, predicates which occur in this construction may appear either with an oblique agent or without it. When the oblique agent is not expressed but only implied, predicates in this construction have an empty syntactic valency frame, i.e. no core arguments (SUBJ or OBJ) are ever present with the verbal forms in this construction:

$$(26) \quad \text{PREDICATE}_{\text{passive}} \langle \text{OBL}_{\text{ag}} \rangle$$

$$\quad \quad \quad \text{PREDICATE}_{\text{passive}} \langle \quad \quad \rangle$$

An empty syntactic valency frame is inherently ambiguous between the impersonal passive and the active impersonal interpretation and enables a change of analysis:

$$(27) \quad \text{PREDICATE}_{\text{passive}} \langle \quad \quad \rangle \rightarrow \text{PREDICATE}_{\text{impers}} \langle \quad \quad \rangle$$

The predicate remains lexically unaltered: it still requires one semantic participant which is interpreted as an agent. In both constructions the agent is unexpressed. The lack of expression of the oblique agent in the passive allows the speaker to formulate a rule in which the implied agent is an unexpressed PRO subject:

$$(28) \quad \begin{array}{ccc} & x & \\ & | & \\ \text{PREDICATE}_{\text{passive}} \langle & \text{arg}_i & \rangle & \rightarrow & \text{PREDICATE}_{\text{impers}} \langle & \text{arg}_i & \rangle \\ & [-\text{o}] & & & & [-\text{o}] & \\ & [+r] & & & & \text{SUBJ} & \\ & (\text{OBL}_{\text{ag}}) & & & & \text{PRO}_{\text{impers}} & \end{array}$$

Grammatical change from the passive to the active may also occur in a language with a non-promoting passive. Furthermore, the non-promoting passive may be an intermediate stage in a language with the promoting passive which innovates the active impersonal from its promoting passive (as has been evident in Icelandic). This stage may facilitate the introduction of the structural object into a construction which is still passive, before the re-interpretation of its agent as a PRO subject switches its analysis to the active.

The following diagram illustrates the change from the promoting to the non-promoting passive of the transitive. In Icelandic, the available evidence shows that the non-promoting passive of the transitive was first innovated in addition to, instead of replacing, the promoting passive of the transitive, for reflexive verbs with the clearly accusative reflexive pronoun *sig* (Árnadóttir et al. 2011), and then for a restricted set of transitive predicates occurring in collocations with particular accusative objects (Sigurðsson 2012). These changes started occurring in parallel with the change of analysis of the impersonal passive of the intransitive. However, as long as the oblique agent phrase was allowed with the accusative objects, we are justified in analysing this construction as a (non-promotional) impersonal passive of the transitive:

$$(29) \quad \begin{array}{ccc} & x & y & \\ & | & | & \\ \text{PREDICATE}_{\text{passive}} \langle & \text{arg}_1 & \text{arg}_2 & \rangle & \rightarrow & \text{PREDICATE}_{\text{pass+obj.pres.}} \langle & \text{arg}_1 & \text{arg}_2 & \rangle \\ & [-\text{o}] & [-r] & & & & [-\text{o}] & [-r] & \\ & [+r] & & & & & [+r] & [+o] & \\ & (\text{OBL}_{\text{ag}}) \text{ SUBJ} & & & & & (\text{OBL}_{\text{ag}}) \text{ OBJ} & & \end{array}$$

Again, recall that a syntactic valency frame with an accusative structural object expressing a patient/theme is inherently ambiguous between the non-promotional

impersonal passive interpretation and the active impersonal interpretation, and therefore enables a change of analysis:

$$(30) \text{ PREDICATE}_{\text{pass+obj.pres.}} \langle \text{OBJ}_{\text{pat/th}} \rangle \rightarrow \text{PREDICATE}_{\text{impers}} \langle \text{OBJ}_{\text{pat/th}} \rangle$$

The predicate remains lexically unaltered: in addition to a patient/theme participant it still requires a semantic participant which is interpreted as an agent. In both constructions the agent is unexpressed. The lack of expression of the oblique agent in the passive allows the speaker to formulate a rule in which the implied agent is an unexpressed PRO subject:

$$(31) \begin{array}{ccc} & x & y & & x & y \\ & | & | & & | & | \\ \text{PREDICATE}_{\text{pass+obj.pres.}} \langle \text{arg}_1 & \text{arg}_2 \rangle & \rightarrow & \text{PREDICATE}_{\text{impers}} \langle \text{arg}_1 & \text{arg}_2 \rangle \\ & [-\text{o}] & [-\text{r}] & & [-\text{o}] & [-\text{r}] \\ & [+r] & [+o] & & \text{SUBJ} & \text{OBJ} \\ & (\text{OBL}_{\text{ag}}) & \text{OBJ} & & \text{PRO}_{\text{impers}} & \end{array}$$

6.2. Grammatical change from the *active impersonal* to the *impersonal passive*

In the process of grammatical change from the active impersonal to the impersonal passive, an adjunct of cause or reason may be introduced to mean ‘because of *x*’, initially coindexed with the agentive PRO subject, which means that the cause and the agent have the same referent. The coreferring dependent in this construction may first be expressed by a reflexive. Then the construction may switch to the impersonal passive, with the PRO subject losing its participant status, and the oblique dependent requiring to be expressed through a non-anaphoric element:

$$(32) \text{ PREDICATE}_{\text{impers}} \langle \quad \quad \quad \rangle \rightarrow \text{PREDICATE}_{\text{passive}} \langle \quad \quad \quad \rangle$$

$$(33) \begin{array}{ccc} & x_i & z_i & & x & \\ & | & | & & | & \\ \text{PREDICATE}_{\text{impers}} \langle \text{arg}_1 & \text{arg}_4 \rangle & \rightarrow & \text{PREDICATE}_{\text{passive}} \langle \text{arg}_1 & \rangle \\ & [-\text{o}] & [-\text{o}] & & [-\text{o}] & \\ & \text{SUBJ} & (\text{OBL}_{\text{cause}}) & & [+r] & \\ & \text{PRO}_{\text{impers}} & & & (\text{OBL}_{\text{ag}}) & \end{array}$$

The same path is available for the grammatical change from the active to the passive for transitive predicates. One option is for the target construction to be the non-promotional passive of the transitive:

$$(34) \text{ PREDICATE}_{\text{impers}} \langle \text{OBJ}_{\text{pat/th}} \rangle \rightarrow \text{PREDICATE}_{\text{pass+obj.pres.}} \langle \text{OBJ}_{\text{pat/th}} \rangle$$

$$\begin{array}{ccc}
 (35) & \begin{array}{ccc} x_1 & y & z_1 \\ | & | & | \\ \text{PREDICATE}_{\text{impers}} \langle \text{arg}_1 & \text{arg}_2 & \text{arg}_4 \rangle \\ [-o] & [-r] & [-o] \\ \text{SUBJ} & \text{OBJ} & (\text{OBL}_{\text{cause}}) \\ \text{PRO}_{\text{impers}} & & \end{array} & \rightarrow & \begin{array}{cc} x & y \\ | & | \\ \text{PREDICATE}_{\text{pass+obj.pres.}} \langle \text{arg}_1 & \text{arg}_2 \rangle \\ [-o] & [-r] \\ [+r] & [+o] \\ (\text{OBL}_{\text{ag}}) & \text{OBJ} \end{array}
 \end{array}$$

The other option is for the target construction to be the personal, promotional passive of the transitive, with a patientive subject reanalysed from a topicalised direct object. This path has been argued for Kaqchikel Mayan (Broadwell and Duncan 2002, Broadwell 2006, Siewierska 2010), Kimbundu (Givón 1979), and is common according to Haspelmath (1990). The analysis put forward by these scholars suggests strongly that the non-promotional passive of the transitive, as illustrated in (34) and (35), is a transitional facilitating stage in the grammatical change from the active to the passive in the same way as it is a facilitating stage in the grammatical change in the opposite direction – which was illustrated in (29). To complete the model of the grammatical changes, the following diagram illustrates the change from the non-promoting to the promoting passive of the transitive, i.e. the reverse of (29):

$$\begin{array}{ccc}
 (36) & \begin{array}{cc} x & y \\ | & | \\ \text{PREDICATE}_{\text{pass+obj.pres.}} \langle \text{arg}_1 & \text{arg}_2 \rangle \\ [-o] & [-r] \\ [+r] & [+o] \\ (\text{OBL}_{\text{ag}}) & \text{OBJ} \end{array} & \rightarrow & \begin{array}{cc} x & y \\ | & | \\ \text{PREDICATE}_{\text{passive}} \langle \text{arg}_1 & \text{arg}_2 \rangle \\ [-o] & [-r] \\ [+r] & \\ (\text{OBL}_{\text{ag}}) & \text{SUBJ} \end{array}
 \end{array}$$

7. Conclusions

When impersonal passives and active impersonals share the same realisation (morphology), they may be superficially indistinguishable. The impersonal passive of the intransitive may occur without an oblique agent, and if so, its syntactic valency frame is identical to that of the active impersonal of the intransitive. The non-promoting impersonal passive of the transitive may also occur without an oblique agent, and if so, its syntactic valency frame is identical to that of the active impersonal of the transitive. The corollary of this last point is very important: since passives can be non-promotional, an accusative object is not sufficient to distinguish between the passive and the active construction.

In languages in which the two constructions have fully grammaticalised, the passive and the active can be demonstrated to have diametrically different syntactic behaviour. This is due to the fact that the passive does not have a subject, while the active impersonal has a covert PRO subject. Therefore, various language-specific syntactic tests aimed at detecting subjects demonstrate that the two constructions are polar opposites with regard to their subject, even if they have the same or cognate morphology.

In languages in which the constructions are in the process of changing, the tests may not all point to the same conclusion. Since the passive is defined by the alternation in the realisation of the agent argument – as either the subject (in the active) or an omissible

oblique (in the passive) – the presence of an oblique agent in the syntactic valency frame of a predicate does identify that instance of the construction as passive.

In the absence of the context involving subordinate clauses which require control or binding by a subject, the active impersonal and the impersonal passive without an oblique agent remain ambiguous. Syntactic tests regarding control and binding by a subject do usually have the capacity to distinguish between the active impersonal and the passive impersonal in the grammars of particular speakers. However, it is important to remember that both control and binding may be performed by the highest semantic argument – e.g. the agent, or the human (as opposed to non-human) participant – not necessarily by the syntactic subject. This is one of the reasons why the constructions may potentially remain ambiguous even for a single speaker.

The analysis of passives and impersonals presented here is orthogonal to the assumed model of unaccusativity. However, unaccusativity might be the most reliable factor which distinguishes an active impersonal from an impersonal passive without an oblique agent. Our working hypothesis is that only the passive construction should show restricted applicability to a part of the verbal lexicon (even if it correlates with the interpretation of the highest semantic participant as an agent rather than an experiencer), and the active impersonal should be insensitive to unaccusativity (even if it may show a tendency to occur with human agents). This issue remains to be addressed in further work.

The version of the Mapping Theory used in the present work has proven suitable to model the grammatical changes in both directions: from the passive to the active and the opposite. Both changes are enabled by the inherent syntactic ambiguity of the two constructions, and facilitated by small stepwise changes which are predicted by the Mapping Theory.

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