

'Telic Entity' as a Proto-Property of Lexical Predicates

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1. Telicity and Transitivity*

Linking theories, such as the LEXICAL MAPPING THEORY, account for recurring patterns of grammatical encodings associated with the arguments of predicates cross-linguistically. These proposals are designed to account for the GRAMMATICAL FUNCTION status of arguments associated with simple predicates or the alternative grammatical functional encodings associated with related predicates. Alternative function encodings are often divided into two types (cf. Simpson 1982, Ackerman 1990, 1992, and Joshi 1992, Dubinsky and Simango 1996, and Sadler and Spencer 1998, among others):

- (i) MORPHOSYNTACTIC : Lexical semantics preserved; grammatical function assignments altered (e.g. PASSIVE, LOCATIVE INVERSION).
- (ii) MORPHOSEMANTIC: Grammatical function alternation corresponds to a semantic contrast (e.g. CAUSATIVE, LOCATIVE ALTERNATION).

This paper will examine a class of morphosemantic alternations, where the semantic contrast is in terms of TELICITY, and the encoding alternation is realized on the object argument in affirmative clauses containing personal verb forms.¹ This is exemplified in the following Finnish and Estonian examples:²

- (1) FINNISH:
- a. Matti osti maito-a (tunni-n).
Matti-SG/N bought milk-SG.P (hour-ACC)
'Matti bought milk (for an hour).'
 - b. Matti osti maido-n (tunni-ssa).
Matti-SG/N bought milk-SG.A (hour-INESS)
'Matti bought the milk (in an hour).'
- (Kiparsky 1998:279, cf also Heinämäki 1984)

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¹ We define telicity more precisely below. Since aspect interacts with alternative case marking for objects in the Finnic languages, we restrict our focus here to transitive clauses.

² We gloss partitive and accusative *-P* and *-A* respectively. The accusative label represents a certain abstraction over the data, as there is a degree of case syncretism that obscures the distinction between accusative and genitive case in some instances. See Maling (1993) for discussion of this issue with respect to Finnish data; similar arguments hold for Estonian.

- (2) ESTONIAN: a. Ma ehitasin endale suvilat (kaks nädalat).
I-N built-1SG/IPF myself-SG-ALL cottage-P (two-PART week-PART)
 ‘I was building the cottage for myself (for two weeks).’
 b. Ma ehitasin endale suvila (kahe nädalaga).
I-N built-1SG/IPF myself-SG-ALL cottage-A (two-GEN week-GEN-COM)
 ‘I built the cottage for myself (in two weeks).’
 (adapted from Erelt M. et. al., 1997:SY36)

The durative adverbials in the (a) examples co-occur with ATELIC predicates, while the time span adverbials in the (b) examples co-occur with TELIC predicates. We see that this semantic contrast corresponds to a partitive/accusative encoding alternation within personal affirmative clauses in both languages.

The verbal lexicon of Estonian is commonly divided into two large government classes:

- (3) PARTITIVE VERBS – verbs that govern partitive case only (cf. Tuldava 1994:187 and Saagpakk 1982:lxvi):

<i>Feelings</i>		<i>Senses</i>		<i>Unresolved Actions</i>	
armastama	‘love’	kuulama	‘listen’	aitama	‘help’
rõõmustama	‘gladden’	kuulma	‘hear’	juhtima	‘direct’
imetlama	‘admire’	maistma	‘taste’	jätkama	‘continue’
kartma	‘fear’	mäletama	‘remember’	lööma	‘strike’
kiitma	‘praise’	nautima	‘enjoy’	ootama	‘await’
põlgama	‘despise’	nuusutama	‘smell’	otsima	‘seek’
tundma	‘feel, know’	nägema	‘see’	segama	‘disturb’

- (4) ASPECTUAL VERBS – verbs that govern either the partitive or accusative case (cf Erelt et. al. 1993:50):

avastama	‘discover’	loomama	‘construct’	parandama	‘improve’
saavutama	‘attain’	kujundama	‘shape’	koostama	‘put together’
keetma	‘cook’	voltima	‘fold’	moodustama	‘form’

These classes, as well as the usage patterns of the relevant verbs form the basis of the following descriptive generalization:

- (5) The partitive/accusative alternation in Finnish and Estonian correlates with an atelic/telic contrast.³

³ An alternative account links the partitive/accusative alternation to a contrast in specificity (cf. de Hoop 1996). Kiparsky (1998) argues against this approach.

A generalization such as (5) is consistent with claims by Tsunoda (1981) and Hopper and Thompson (1981) that telicity contributes to the transitivity of a clause. In this paper, we derive (5) from a proto-role theory of argument selection, following Dowty (1991) and a tradition within LFG that dispenses with both atomic thematic roles and thematic hierarchies and recognizes a role for telicity in argument selection. (cf. Ackerman 1990, 1992, Zaenen 1993, and Joshi 1993, Markantonatou 1995). In addition, we propose a new proto-patient property: TELIC ENTITY. (cf. also Tsunoda 1981, Hopper and Thompson 1981, 1982, Grimshaw 1990, Smith 1991, Krifka 1992, 1998, Tenny 1994, Ramchand 1997, Butt 1998, Kiparsky 1998, Filip 1999, among others.)

2. TELIC ENTITY as a Thematic Proto-Property

2.1. Proto-Properties and Syntagmatic vs. Paradigmatic Selection

Dowty (1991) proposes that the functional encoding of arguments is best formulated in terms of PROTO-ROLES, where atomic role labels such as AGENT and PATIENT are interpreted as proto-type cluster categories based on PROTO-AGENT and PROTO-PATIENT properties:

(6) Proto-Roles and Proto-Properties:

Proto-Agent properties

- volitional involvement in event or state
- sentience
- causing an event or change of state
- movement (relative to position of other participant)
- exists independently of the event

Proto-Patient properties

- undergoes change of state
- incremental theme
- causally affected
- stationary (relative to another participant)
- does not exist independently of the event, or not at all

Under this approach, grammatical function encoding of arguments is regulated by the ARGUMENT SELECTION PRINCIPLE:

(7) (SYNTAGMATIC) ARGUMENT SELECTION PRINCIPLE:

In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object (Dowty 1991:576).

Because this selection principle applies to co-arguments of a single predicate, we call it the Syntagmatic Argument Selection Principle. Its operation is illustrated in (8):

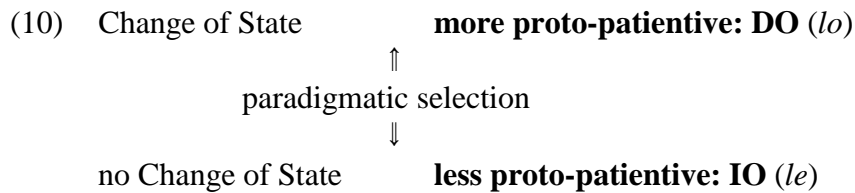
<p>(8) <i>The builders</i> volitional sentient causing change of state movement relative to OBJ exists independently</p>	built ← syntagmatic ⇒ selection	<p><i>the house.</i> undergoes change of state incremental theme causally affected stationary relative to SUBJ lack of independent existence</p>
most Proto-Agentive: SUBJ		most Proto-Patientive: OBJ

In Ackerman and Moore (1993, 1995, and 1999), we propose an extension to the Syntagmatic Argument Selection Principle to handle morphosemantic, paradigmatic contrasts. For example the direct/indirect object encoding alternation associated with certain Spanish psych-verbs corresponds to a semantic contrast in terms of the proto-patient property CHANGE OF STATE:

(9) *Example of Paradigmatic Selection:*

- a. Los perros **lo** molestan siempre que llega ebrio.
‘The dogs harass **him (DO)** every time he comes home drunk.’
- b. Los perros **le** molestan (* siempre que llega ebrio).
‘Dogs bother **him (IO)** (* every time he comes home drunk).’
(Treviño 1990, 50b & 51b)

This morphosemantic alternation yields a paradigmatic contrast in the degree of proto-patientivity with respect to the experiencer argument:



Based on paradigmatic alternations like (10), as well as similar alternations in causative and other constructions, we propose the following selection principle:

- (11) PARADIGMATIC ARGUMENT SELECTION PRINCIPLE:
In predicates where a ‘single’ argument exhibits alternative encodings, the most proto-typical alternant with respect to a particular proto-role will be realized with a less oblique encoding than an argument that is less proto-typical with respect to the same proto-role.

The point of the paradigmatic strategy is to provide a theory of morphosemantic encoding alternations, complementing the syntagmatic strategy. The two encoding strategies are well-formedness conditions over the lexicon: the syntagmatic strategy is a condition on well-formed lexical items, while the paradigmatic strategy is a condition on related lexical items. Thus, the lexical entries in (12) are faithful to both selection principles.

- (12) a. *molestar_a* <agr₁, arg₂>
 ‘harrass’ Causer (Proto-Agent) Sentient (Proto-Agent)
 Change of state (Proto-Patient)
 DO
 SUBJ
- b. *molestar_b* <agr₁, arg₂>
 ‘bother’ Causer (Proto-Agent) Sentient (Proto-Agent)
 IO
 SUBJ

Given that the selection principles refer to predicate entailments and lexically specified encoding options, *molestar_a* and *molestar_b* must have different entailments which correspond to principled differences in function selection. Therefore, they must represent different, but related predicates.

2.2. The Role of Telicity

As discussed above, Estonian accusative/partitive alternation exhibits a semantic contrast in telicity:

- (13) a. Ma ehitasin endale suvilat (kaks nädalat).
 I-N built-1SG/IPF myself-SG-ALL cottage-P (two-PART week-PART)
 ‘I was building the cottage for myself (for two weeks).’
- b. Ma ehitasin endale suvila (kahe nädalaga).
 I-N built-1SG/IPF myself-SG-ALL cottage-A (two-GEN week-GEN-COM)
 ‘I built the cottage for myself (in two weeks).’

This is exactly the type of alternation that the Paradigmatic Argument Selection Principle should account for. However, in order for the alternation in (13) to be accounted for in this way, we need to show that there is (i) an alternation in obliqueness, and (ii) a contrast in proto-patientivity.

2.2.1 Obliqueness

There is evidence that this accusative/partitive alternation corresponds to a case alternation and not a contrast in grammatical function (Uuspõld 1969, Kiparsky 1998).⁴ That is, in both cases, the noun phrase is a direct object; the alternation is one of surface case only. Thus, the obliqueness contrast is in terms of case; we express this via the case hierarchy in (14) (cf. Blake 1994:157).

- (14) CASE HIERARCHY: nom > acc/erg > gen > part > dat > loc > abl/inst > other obl

Under this view, then, partitive objects are more oblique than accusative objects. This correctly captures the intuition that the accusative object in (13b) is less oblique than the partitive in (13a).

⁴ For example both partitive and accusative arguments participate in Raising to Object.

2.2.2 Contrast in Proto-patientivity

Under the standard set of proto-properties, there is no contrast in degree of proto-patientivity between the objects in (13); both objects bear the same set of proto-patient entailments:

(15)	<i>suvila</i> ‘cottage-A’	undergoes change of state	(proto-patientive)
	<i>suvilat</i> ‘cottage-P’	incremental theme	(proto-patientive)
		causally affected	(proto-patientive)
		stationary relative to SUBJ	(proto-patientive)
		lack of independent existence	(proto-patientive)

The basic problem is that the examples appear to contrast with respect to telicity, but that telicity is not represented in the original set of predicate entailments interpreted as proto-properties. Since some notion of telicity appears to be the only relevant semantic difference, it must be represented as a proto-patient property, if we are to explain the morphosemantic contrast with the Paradigmatic Selection Principle. We call this telicity-related proto-patient property TELIC ENTITY. Based on the definition of TELIC PREDICATE in (16), we define TELIC ENTITY as in (17)

- (16) A lexical predicate P is TELIC iff for every event e and e' , such that $P(a_1, \dots, a_n, e)$ and $P(a_1, \dots, a_n, e')$, and where e' is a subevent of e , e and e' have the same boundaries (end-points). (cf. Krifka 1998).
- (17) An argument a_i of predicate P is a TELIC ENTITY iff P is a telic predicate and entails that a subpart of the denotation of the entity that corresponds to a_i (under any use of P), expresses the end-point of any telic event denoted by P and its arguments.

Given these definitions, we can formalize a contrast in telicity as a contrast in proto-patientivity, by positing two lexically-related predicates that contrast in their proto-patient entailments and have different case-government patterns.⁵

⁵ We should emphasize that not all telic eventualities entail TELIC ENTITY for an argument; in fact, as Filip (1999) points out, telicity can be determined by non-arguments. Furthermore, it is possible that a non-object argument may bear the TELIC ENTITY entailment, as in:

- (i) We put the ball in *the bucket*.

Unless there is a contrast in the TELIC ENTITY entailment with respect to a particular non-object, we make no predictions about how these should be encoded.

homomorphism guarantees a parallel mereology between incremental theme arguments and the structure of the events. In particular, the INCREMENTAL THEME mapping establishes the following relationships:⁶

(22)	<i>Structure of argument</i>		<i>Event structure</i>
	cumulative	⇒	atelic
		INCREMENTAL THEME	
	quantized	⇒	telic
		INCREMENTAL THEME	

Thus, while there is a close relationship between INCREMENTAL THEMES and TELICITY, they are distinct. In (21), there are incremental themes, but the events are either atelic or telic. Therefore, a predicate can entail the INCREMENTAL THEME property for one of its argument without entailing the TELIC ENTITY proto-property.

Conversely, a predicate can entail TELIC ENTITY, without entailing INCREMENTAL THEME:

- (23) a. Tunnen hästi oma sõpra.
know-1SG.PRES well own-P friend-P
 ‘I know my own friend well.’
 (from Vääri 1975:103)
- b. Tundsin selles noormehes ära olümpiavõitja.
know-1SG.IPF this-IN youngman-IN PREVERB olympic-champ-A
 ‘I recognized an olympic champion in this young man.’
 (Kippasto, Nurk, and Seilenthal. 1997)

In (23) there is a stative/achievement contrast. This contrast comes from an alternation in TELIC ENTITY, not INCREMENTAL THEME:

- (24) a. **stative** ↗ TELIC ENTITY neither entails INCREMENTAL THEME
 b. **achievement** → TELIC ENTITY

⁶ Krifka’s formulation differs from Dowty’s in the following respect: Dowty (1991, p. 567) defines INCREMENTAL THEME as a homomorphic mapping from object structures to event structures (preserving the PART-OF relation). Krifka (1998) defines a series of principles that effectively define an isomorphism between event structures and object structures (again, preserving the PART-OF relation). However, Krifka’s proof (p. 214) that a telic event corresponds to a quantized object (and that an atelic event corresponds to a cumulative object) only makes use of the mapping from event structures to object structures – the converse of Dowty’s incremental theme. Nevertheless, it is possible, using Krifka’s system, to achieve the same results by only referring to the mapping from object structures to event structures. Hence, it appears that a homomorphism in one direction or the other is all that is needed.

We conclude that TELIC ENTITY and INCREMENTAL THEME are independent proto-patient properties (cf. Ramchand 1997).

3. Telic Entity as a Predicate Entailment

For Estonian aspectual verbs, we posit separate lexical entries on the basis of (i) contrasting case government, and (ii) contrasting lexical entailment of TELIC ENTITY. This allows us to use the Paradigmatic Selection Principle to account for the direction of the case alternation. In English verbs like *drink*, there is no case alternation and the alternation in TELIC ENTITY seems to depend on the semantics of the object argument. Therefore, there is no reason to posit separate lexical entries. This leads to a more general question: given that telicity is often determined by the nature of the object argument, what evidence is there for treating telicity as a predicate entailment, rather than computing it compositionally? We answer this question by surveying some of the cross-linguistic typology with respect to the exponence of telicity.

3.1. Finnish

Filip (1999) proposes a compositional account of telicity for Finnish partitive/accusative alternations in Finnish:

- (25) a. Kalle lämmittää saunaa.
Kalle-N warm-3SG.PRES sauna-P
 ‘Kalle is warming up the sauna.’
 b. Kalle lämmittää saunan.
Kalle-N warm-3SG.PRES sauna-A
 ‘Kalle will warm up the sauna.’
 (Karlsson 1983:80)

Filip assumes that accusative objects, when incremental themes, are quantized; partitive objects are underspecified for quantization. Working in a unificational framework, Filip uses the equivalent of an INCREMENTAL THEME function to ensure that the quantized accusative object maps to a telic event structure. Hence, under her analysis, the telicity of the event is determined by the quantization of the object, which, in turn is keyed to case marking.

3.2. Czech

In contrast, Filip (1999) proposes a lexical treatment of telicity for the following Czech contrast:

- (26) a. Psal dopis.
write.PAST letter.SG.ACC
 ‘He wrote (a/the letter)/He was writing (a/the letter).’

- (29) a. *ärajooma* <arg₁ , arg₂>
 ‘drink up’ various Proto-Agent props various Proto-Patient props
 SUBJ **telic entity**
 DO
accusative
- b. *jooma* <arg₁ , arg₂>
 ‘drink’ various Proto-Agent props various Proto-Patient props (**no telic entity**)
 SUBJ DO
partitive

Given this independent motivation for treating telicity as a lexical property in Estonian, we propose to extend it to aspectual verbs, where there is no contrast in verb morphology, but only a contrast in case government:

- (30) a. Laps voltis kahte paberlaevukest.
child-N fold-3SG-IPF two-P paper-boat-P
 ‘The child was folding two paper boats.’
- b. Laps voltis kaks paberlaevukest.
child-N fold-3SG-IPF two-A paper-boat-A
 ‘The child folded two paper boats.’

- (31) a. *voltima_a* <arg₁ , arg₂>
 ‘fold’ various Proto-Agent props various Proto-Patient props
 SUBJ **telic entity**
 DO
accusative
- b. *voltima_b* <arg₁ , arg₂>
 ‘fold’ various Proto-Agent props various Proto-Patient props (**no telic entity**)
 SUBJ DO
partitive

This move allows us to use the Paradigmatic Selection Principle to account for the direction of the case alternation in Estonian, both in partitive and aspectual verb classes.

Given the parallelisms between Estonian aspectual verbs and Finnish concerning semantic contrasts and case-marking alternations, we can extend the analysis in (31) to Finnish. That is, rather than deriving the telicity compositionally, we propose that it be a lexical property, as we have argued is the case with cognate aspectual verbs in Estonian. In other words, we argue that in Czech, Estonian, and Finnish, telicity is treated as an entailment of lexical predicates; that is, telicity has been grammaticized in these languages. In English, on the other hand, there is no evidence for lexical telicity - the contrast has no morphological or case government reflexes. Thus, in English,

telicity has not been grammaticized in the same way.

To summarize, the encoding factors that motivate lexical telicity are: (i) verbal morphology (prefixes, preverbs), and (ii) case government. This translates into the well-known typological distinction between head- and dependent-marking:

(32) **The expression of telicity:**

<i>Czech:</i>	head marking	<i>telicity is</i>
<i>Estonian:</i>	head marking and dependent marking	<i>grammaticized</i>
<i>Finnish:</i>	dependent marking	

<i>English:</i>	determined compositionally	<i>no grammaticization</i>

When TELIC ENTITY is a lexical entailment and it is expressed by an encoding alternations, then the Paradigmatic Selection Principle correctly predicts the direction of the alternation.

4. Conclusions

In this paper we have argued for the need to posit TELIC ENTITY as a proto-property entailment of lexical predicates. In expanding the class of grammatically relevant predicate entailments to include TELIC ENTITY we have explicitly incorporated into Dowty's framework one of the properties hypothesized to be crucial for distinguishing between degrees of semantic transitivity by Tsunoda (1981) and Hopper & Thompson (1982).

The need for a TELIC ENTITY proto-property only became apparent when faced with a class of telicity-induced encoding alternations. The fact that paradigmatic selection reveals the need for a TELIC ENTITY proto-property raises a larger point: should additional transitivity factors that are proposed by Hopper and Thompson, but not reflected in Dowty's proto-properties be incorporated into a proto-type theory of thematic roles?

Under our account, it is important that the construct PREDICATE be recognized as an information unit determinative for argument selection (Perlmutter 1979, Mohanan 1995, and Ackerman and Webelhuth 1998, among others). Predicates can be interpreted lexically (Ackerman and Webelhuth 1998 and Frank 1996), or composed of elements in phrasal syntax (see Alsina 1996 and Butt 1998).

By appealing to grammatically relevant predicate entailments and an independently motivated notion of obliqueness, one can develop a general theory of morphosemantic alternations. In addition, we have done this without reifying proto-roles, thereby permitting arguments to be compared with one another with respect to their sets of proto-properties. This assures a role for Dowty's original counting procedures as relevant for linking.

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