Towards a Study of Situation Types of Irish

Brian Nolan

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1   Introduction

In this paper we analyse the structure of situation types as found in Irish. We translate these situation types into a logical metalanguage, giving the logical structure of each type. We do this to differentiate, for Irish, the aktionsarten distinctions of state, activity, achievement and accomplishment as they are found within the language.

The motivation of this paper is therefore to describe the aktionsart of modern Irish and to determine the logical structure that underpins these situation types. Undertaking an analysis of situation types in terms of logical structure will enable us to provide a suitable treatment of important language phenomena including:

a) Differentiating between the copula and the substantive verb, while focusing on the substantive.

b) Capturing the use of prepositions with state and location.

c) Differentiating between the predications of verb and verbal adjective.

d) Finding the means by which possession, as against ownership, may be recorded as a state or property.

e) Understanding the use and deployment of the verbal noun.

f) Differentiating between perfectivity and imperfectivity in activities.

g) Finding a suitable means by which we treat code mass nouns, sufficient to our purposes in analysing the telic/atelic aktionsart properties in relation to Irish. The compositional blend of mass noun and verb in the construction effectively delivers the appropriate aktionsarten reading. Any solution to this must therefore make reference to the inner structure of these mass nouns. We therefore need some means of recording the structural properties of nouns, whether count or mass. Logical structure representation assists with this.

We start with a brief clarification of some terminology that will be used within the analysis. We follow this with a brief description of various diagnostic tests useful in determining the particular aktionsart classification in different sentences and situations. We examine in turn the aktionsart distinctions of state, activity, accomplishment and achievement. We explore the influence of durative, manner, pace and point adverbials on the interpretation of aktionsart situation types along with the role played by prepositions, verbal adjectives and verbal nouns.

2   The Four Basic Aktionsarten Distinctions

The distinctions in aktionsart were originally proposed by Vendler (1967) in which he argued that verbs, and other predicating elements, could be classified in terms of their inherent temporal properties. Vendler proposed four basic classes: states, achievements, accomplishments and activities. The four Vendler classes can be defined in terms of whether the action denoted by the verb in the clause is static or not, punctual or not, and telic or not. The distribution of these qualities over the aktionsart classes is indicated following.

(1)   State   static   non-telic   non-punctual

Activity   non-static   non-telic   non-punctual

Accomplishment   non-static   telic   non-punctual

Achievement   non-static   telic   punctual

States are static non-dynamic situations involving the location, state or condition of a participant, or an external experience of a participant. These states are characterised by having no inherent terminating point. Activities or actions are defined as dynamic states of affairs in which a participant does something. An action is inherently unbounded. Accomplishments are states of affairs that involve a bounded process of change that takes place over time. Typically these encode a change of location, state, condition, or internal experience of a participant. These accomplishment processes have an inherent termination point. Achievements are states of affairs which seem to happen instantaneously, being conceptualised as immediate events. This category is inchoative in nature, and has an inherent termination point. Telicity has to do with whether a verb depicts an activity of some kind with an inherent termination point, or not. States and activities lack inherent terminal points and are therefore atelic, or non-telic. Punctuality distinguishes telic events with internal duration from those that lack it.

The four basic aktionsarten distinctions can be represented in logical structures according to the table below. Following convention, predicates are presented in **bold** typface followed by a prime, whereas variable elements are presented in normal typeface. The elements in bold+prime (**pred'**) are part of the vocabulary of the metalanguage used in semantic decomposition.

(2)

Verb Class	Logical Structure
State	**predicate'** (x) or (x,y)
Activity	**do'** (x, [**predicate** (x) or (x, y)])
Achievement	INGR **predicate'** (x) or (x,y)
Accomplishment	BECOME **predicate'** (x) or (x,y)

3 Tests on the Aktionsart Type of a Verb

How do we know what is the aktionsart type of a verb? The literature suggests a number of diagnostics (Vendler 1967, Dowty 1979, Pustejovsky 1995). For our purposes we may adopt a series of tests based on those identified in VanValin & LaPolla (1997:94*ff*) and summarised in the table below.

Diagnostic	States	Achievement	Accomplishment	Activities
1. Occurs with progressive *Tá X$_{NP}$ ag Y$_{VN}$* "X is Y-ing"			**yes**	**yes**
2. Occurs with dynamic action adverbs like *go bríomhar*, "vigorously", etc.				**yes**
3. Occurs with manner and pace adverbs like *go tapadh* "quickly", *go mall* "slowly", etc.			**yes**	**yes**
4. Occurs with durative adverbials such as *ar feadh __* "for __"	**yes**		n/a (yes)	**yes**
5. Occurs with frame adverbials such as *i __* "in __"			**yes**	
6. Occurs with adverbials such as *ionann* "almost", *dóbair* "nearly"		**yes**	**yes**	**yes**

In general, these states of affairs (state, achievement, accomplishment and activity) differ with respect to issues such as: how many participants are involved, whether there is a terminal point, and whether the state of affairs is spontaneous or caused. The important issue of termination point relates to whether a state of affairs describing an activity of some kind inherently comes to a conclusion. An inherent termination point is to be found with the verbal action denoted by *ag tirimú* "drying" while that denoted by *ag casadh* "turning" does not. <u>Achievement</u> events have an inherent termination point. It is, however, possible for an otherwise discrete achievement event to occur in an iterative manner and, in this context, the continuous occurrence will not have a coded termination point. <u>States</u> do not have an inherent termination point in that there is nothing in the nature of being, say, *ar an mbord* "on a table" that implies that these situations will terminate. An <u>activity</u> or action is also inherently unbounded while <u>accomplishment</u> processes do have an inherent termination point. We can summarise these as:

Aktionsart	*Quality*	*Termination coding*
state	static, non dynamic	no inherent termination point
achievement event	happen instantly	inherent termination point
accomplishment process	involve change over time	inherent termination point
activity/action	dynamic, participant does something	no inherent termination point

1.4   States

States are static non-dynamic situations involving the location, state, condition, or external experience of a participant, characterised by having no inherent terminating point. In Irish, states are primarily recorded by use of the verb "to be". Irish, however, has two verbs of "to be" – the copula and the substantive. An Irish speaker will use the copula for classification, identification, and expression of ownership with the preposition *le* "with", or to indicate an emphasis. Ownership in Irish is expressed somewhat differently from possession. Expression of possession makes use of the substantive verb. The expression of ownership involves the use of the copula together with the preposition *le* "with. We use a different metalanguage operator in the logical structure representation for the copula as against that used for the substantive verb. This allows us to simply differentiate in logical structure between these two verbs of "to be". An example of the underlying logical structure of a copula sentence is shown in (3), with (4) indicating a substantive verb example. Another important difference between the two verbs of "to be" is that the copula indicates a permanent state, whereas the substantive indicates a more transitory or temporary condition. Example (4) denotes the state as a location.

(3)   *Is   le   Tara   an   leabhair*

is:COP-PRES with:PP Tara:N the:DET book:N

Tara owns the book.

is'(an leabhair, [**le'**(Tara)])

is'(x, [**le'**(y)])

(11)   *Tá   an   leabhair ar   an   mbord*

is:SUBV the: DET book:N on:PP the: DET table:N

The book is on the table.

be'(an leabhair, [**ar'**(an mbord)])

be'(*x*, [**ar'**(*y*)])

The expression of a state as a position, as against state as a location, is described by use of the preposition *le* "with":

(5)   *Tá   Aisling   le   Oisín*
        is:SUBV Aisling:N with:PP Oisín:N
        Aisling is with Óisin

        be'(Aisling, [**le'**(Oisín)])
        be'(x, [**le'**(y)])

Many sentences in Irish use a verbal adjective form to denote the coding of a state or condition. This verbal adjective bears a strong relationship to the nature of the verbal action from which it originates, i.e. *an fuinneog briste* "the broken window". It is a feature of Irish that all verbs have a verbal adjective or a nominal modifier form. We record these in logical structure by use of the template **be'**$(x_1,[\textbf{pred'}(x_1)])$. The only exception to verbs having a verbal adjective in this way are the verbs of "to be", the copula and substantive. The verbal adjective will always be coded in the second or rightmost variable slot within the **be'** operator. We can therefore appeal to the generalisation as we require.

State

(6)   *Tá   Maire   tuirseach*
        is:SUBV-PRES Maire:N tired:ADJ
        Maire is tired.

        be' (Maire, [**tuirseach'**(Maire)])
        be' (x, [**tuirseach'**(x)])

We can note that the template **be'**$(x_1, [\textbf{pred'}(x_1)])$ gramaticalises the **pred'** in this construction to a verbal adjective. Both variables must be co-indexed and elaborated by the same entity instance.

Condition

(7)   *Tá   an   fuinneog   briste*
        is:SUBV-PRES the: DET window:N broken:VA
        The window is broken.

        be'(an fuinneog, [**bris'**(an fuinneog)])
        be'(x, [**bris'**(x)])

This representation captures the verbal adjective. We can therefore expect to find this generalisation, using this underlying template, whenever a verbal adjective is used within Irish.

4.1 Possession as a State or Property

At this point we need to address the issue of how we record possession as a state or property, as against ownership, in logical structure. We have seen that the substantive verb is used with a preposition such as *ar* "on" to express the location and used with the coding of states. To indicate possession, the preposition *ag* "at" is used. Examples (8 and 9) illustrate. We use (P_{time}) to represent some appropriate point on the time line, known to the speaker and hearer.

State as Location

(8) *Bhí   an   ríomhaire **ar   an   tábla***
is:SUB-PAST the: DET computer:N on:PP the: DET table:N
The computer was on the table.

be' (an ríomhaire, [**ar'**(an bord)])
be' (x, [**ar'**(y)])

State as Possession

(9) Bhí   cupla   carr **ag   Séan**   an   úd
is:SUBV-PAST couple:ADJ cars:N at:PP Seán:N the:DET time:N
Sean had a couple of cars at that time.

an_úd'(P_{time}, **be'**(cupla carr, [**ag'**(Séan)])
an_úd'(P_{time}, **be'**(x, [**ag'**(y)])

We have already noted that the substantive verb is used to express existence, position, state or condition. The example sentence in (10) treats the possessive state as a location to "be in", that state being possessed by the indexed 3rd singular male actor. An additional difficulty we need to deal with next is how do we record possession in logical structure while retaining the generalisations found with the substantive construction using prepositional phrases (PPs) and state/locations. We have already encountered ownership in the copula construction. Possession is differentiated from ownership, with ownership being considered as more permanent a property, hence the copula usage (11). Our representation captures this.

Substantive use for possession

(10) *Tá   sé   ina   fhear*
is:SUBV-PRES him:PN in:PP+his:PN man:N
He is a man.

be'($sé_1$, [**in'**([**a'**([**fear'**($sé_1$)])])])
be'(x_1, [**in'**([**a'**([**pred'**(x_1)])])])

Copula use for ownership

(11) *Is   fear   é*

is:COP-PRES man:N him:PN

He is a man.

is' (é$_1$, [**fear'**(é$_1$)])

is' (x$_1$, [**fear'**(x$_1$)])

5   Activities

Activities or actions are defined as dynamic states of affairs in which a participant does something. An action is inherently unbounded. An activity does not encode any information relating to a start or end state. Activities are usually denoted in Irish through the use of the verbal noun. These are the means by which progressive activities are recorded in the language. The example in (12) makes use of the substantive verb and progressive form. The progressive which takes the form of a verbal noun is introduced by its canonical marker, the preposition *ag* "at". The progressive allows for change to be recorded on the actor who is engaged in the action.

(12) *Tá   Sadhbh   ag   canadh*

is:SUBV-PRES Sadhbh:N at:PP singing:VN

Sadhbh is singing.

do'(Sadhbh, [**be'**(Sadhbh, [**ag'**[**canadh'**(Sadhbh, 0)]])])

do'(x, [**be'**(x, [**ag'**[**canadh'** (x, 0)]])])

An issue presents itself here. How do we differentiate in logical structure between perfectivity (12) and imperfectivity (13) in activities, for Irish? From the examples in (12, 13), it is clear that the essence is captured in the following logical structure templates, indicated in (14) and (15).

(13). *Canann   Sadhbh*

sing:V-PRES Sadhbh:N

Sadhbh sings

do'(Sadhbh, [**canann'**(Sadhbh, 0)])

do'(x, [**canann'** (x, 0)])

(14)   <u>perfective</u>

do'(x, **be'**(…, [**ag'** (**pred'** (x)]))

(15).   <u>imperfective</u>

 do'(x, [**pred'**(x)])

Progressives encode perfectivity. A perfective process portrays a situation as changing through time. Example (12) above records the recognition of being in the state/condition of *being in a situation that is changing through time*. This is an important characteristic of Irish and is diagnostic of the use of prepositions with states in the language. Evidence for this can be taken from the fact that the verbal noun in Irish is atemporal and preceded by the preposition *ag* "at", i.e., it is a verbal process converted into a nominal. The required tense and agreement of the activity is recorded directly on the substantive verb as the verbal noun, as a nominal cannot encode this information. The substantive verb can encode all tenses, including the present tense, in this perfective construction. Some languages, for instance English, do not allow the use of the perfective in simple present tense (Langacker 1991:85). Irish allows the use of the present tense in a progressive construction encoding perfectivity with the particular stative quality noted above. [A detailed discussion of the perfect in modern Irish is to be found in O Sé (1992) and Green (1979)].

Imperfectives, on the other hand, are to be found in the simple present, but not with the progressive. An imperfective process describes the extension through time of a stable situation. Imperfectives therefore describe the continuation through time of a static configuration. A similarity between the perfective/imperfective (active/static) contrast for verbs and the count/mass distinction for nouns has been observed (Langacker 1991b, Mourelatos 1981). Langacker records this similarity as follows:

(16)   Imperfective and Perfective processes (adapted from Langacker (1991:87)

> The component states of an <u>imperfective process</u> are construed as all being effectively identical. An imperfective process is indefinitely expansible or contractible in that any series of component states is itself a valid instance of the category.
> A <u>perfective process</u> is specifically bounded in time within the scope of predication. Replicability (repetitive aspect) is possible for perfective processes.

(17)   Mass and Count nouns (adapted from Langacker (1991:87)

> The region profiled by a <u>mass noun</u> is construed as being internally homogenous. A mass is indefinitely expansible or contractible in that any subpart is itself a valid instance of itself. The region profiled by a <u>count noun</u> is specifically bounded within the scope of predication in its primary domain. Replicability (pluralisation) is possible for count nouns.

In example (13) we do not specify what Sadhbh was actually singing, but use "0" as a macrorole placeholder in logical structure to indicate that an argument could be included here. This indicates that this verb is a two-place predicate. Example (18) is a one-place predicate with only one macrorole and, as such, does not have a y argument in its logical structure. Example (20) is again a two place predicate with two macroroles and, in this instance, with both the x and y arguments elaborated.

(18) *Tá   mé ag rith*
   is:SUBV-PRES I:PN at:PP running:VN
   I am running.

   do'(mé , **be'**(mé, [**ag'**([**rith'**(mé)])]))
   do'(x, **be'**(x, [**ag'**([**rith'**(x)])]))

(19) *Tá   Eamonn ag ól*
   is:SUBV-PRES Eamonn:N at:PP drinking:VN
   Eamonn is drinking beer.

   do'(Eamonn, **be'**(Eamonn, [**ag'**([**ól'**(Eamonn, 0)])]))
   do'(x, **be'**(x, [**ag'**([**ól'**(x, 0)])]))

In example (20) we indicate that "Eamonn is drinking beer" and record this in logical structure with the appropriate variables. The nominal *beoir* "beer" is recorded as the undergoer of the action. We can contrast this with the prior example and its coding of this variable position with a "0", indicating the absence of an undergoer. In regard to example (20), *beoir* "beer" is a mass noun in undergoer position which mandates an aktionsarten interpretation of activity. We will discuss this phenomenon relating to mass nouns more fully when we addressed the logical structure of accomplishments, in the next section.

(20) *Tá   Eamonn ag ól   beoir*
   is:SUBV-PRES Eamonn:N at:PP drinking:VN beer:N
   Eamonn is drinking beer.

   do'(Eamonn, **be'**(Eamonn, [**ag'**([**ól'**(Eamonn, beoir)])]))
   do'(x, **be'**(x, [**ag'**([**ól'**(x, y)])]))

We have addressed the logical structure underlying the event structure of activities of Irish. In the next section we turn our attention to the aktionsart of accomplishments.

6   Accomplishments

Accomplishments are states of affairs involving a bounded process of change that takes place over time. Typically these encode a change of location, state, condition, or internal experience of a participant. These accomplishment processes have an inherent termination point. We have seen from the previous section on activities that examples, such as the sentence in (21) below, denote an activity, in this instance, of indefinite length. The activity in (21) with the one place predicate verb *siúil* "walk" has no temporal durative termination. In (22) it is shown with a clear logical termination (i.e. *go dtí an siopa* "to the shop") and receives an aktionsart interpretation of accomplishment.

Activity

(21)   *Siúlann   Aisling*

walk:V-PRES Aisling:N

Aisling walks.

do'(Aisling, [**Siúlann'**(Aisling)])

do'(x, [**siúl'**(x)])

Accomplishment

(22)   *Siúlann   Aisling go   dtí   an   siopa*

walk:V-PRES Aisling:N to:PP until:PP the:DET shop:N

Aisling walks to the shop.

do'(Aisling, [**Siúlann'**(Aisling)]) & [BECOME **be'**(Aisling, [**go dtí'**(an siopa)])]

do'(x, [**Siúlann'**(x)]) & [BECOME **be'**(x, [**go dtí'**(y)])]

The logical structure fragment … & [BECOME **be'**(Aisling, [**go dtí'**(an siopa)])] encodes the logical termination point of the activity and indicates that the appropriate aktionsarten reading is that of an accomplishment. Its logical structure representation illustrates the logical termination endpoint of the activity thereby allowing for an accomplishment aktionsart interpretation.

In contrast to a logical termination point, a temporal durative termination point is coded in Irish by use of durative adverbs. Durative adverb phrases frequently include a spatial preposition and are used to encode a definite and specific time duration into an event frame, after which time the action terminates. Such durative adverbs would be considered complex in their prepositional use and encode the sense of "on+until". The durative adverbial *ar feadh* "on+until" codes extent in time. Interestingly, extent in space can also be coded with this construction.

(23)   *Ritheann   Tara   ar   feadh   uair*
         run:V-PRES Tara:N on:PP until:PP hour:N
         Tara runs for an hour.

         ar'([**feadh'**(uair)], **do'**(Tara, [**ritheann'**(Tara)]))
         ar'([**feadh'**($t_{extent\_in\_time}$)], **do'**(x, [**ritheann'**(x)]))

We can see that this codes into the event frame both an *extent in time* coupled with a *termination trigger* on the action. In this specific instance, the trigger is a time related termination trigger coding extent in time. We find something similar with example (24) but here the trigger is distance related and denoting *extent in space*.

(24)   *Rith   Sorcha   ar   feadh   dhá   mile*
         run:V-PAST Sorcha:N on:PP until:PP two:NUM mile:N
         Tara ran for two miles.

         ar'([**feadh'**(dá mile)], (**do'**(Sorcha, [**rith'**(Sorcha)])))
         ar'([**feadh'** ($d_{extent\_in\_space}$)], (**do'**(x, [**rith'**(x)])))

An adverb of position can additionally be utilised by the Irish speaker to indicate a termination on an otherwise unbounded activity.

(25)   *Rith   sí   istigh*
         run:V-PAST she:PN inside:ADV
         She ran inside.

         do'(sí, [**rith'**(sí)]) & [BECOME **be'**(sí, [**istigh'**(sí)])]
         do'(x, [**rith'** (x)]) & [BECOME **be'**(x, [**istigh'** (x)])]

The action terminates under an accomplishment interpretation once *istigh* "inside" is reached.

6.1 Mass Nominals

Nominals (Pustejovsky 1995) are held to have internal structure that can be described under a number of headings, which, taken together uniquely described the entity denoted, what it is made of, the type of role(s) and behaviour that it can expect to exhibit. This is the basis of qualia theory. The headings used to capture this information are: constitutive, formal, telic, and agentive. The manner in which they relate together is indicated in (26).

(26)   *Qualia theory*

    a. *Constitutive role*:   <u>The relation between an object and its constitients, or proper parts.</u>

        1.   material

        2.   weight

        3.   parts and components

    b. *Formal role*:   <u>that which distinguishes the object within a larger domain</u>

        1.   orientation

        2.   magnitude

        3.   shape

        4.   dimensionality

        5.   colour

        6.   position

    c. *Telic role*:   <u>purpose and function of the object</u>

        1.   purpose that an agent has in performing an act

        2.   built-in function or aim that specifies certain activities

    d. *Agentive role*:   <u>factors involved in the origin or "bringing about" of an object</u>

        1.   creator

        2.   artifact

        3.   natural kind

        4.   causal chain

The theory requires that the lexical entry for a noun contain a set of qualia $\{Q_C, Q_F, Q_T, Q_A\}$, which represent its primary semantic properties, much like a logical structure represents the semantic properties of a verb. We get a complete semantic representation for a clause when we combine the two, as in example (27).

(27)   a.   *Oscail an doras* "The door opened".

        b   BECOME (**oscail'**(**an doras'**(x), $\{Q_C, Q_F, Q_T, Q_A\}$))

We will let M represent the <u>sort or type</u> of a mass nominal, such as *uisce* "water" or *beoir* "beer". For purposes of this example we will let U represent the particular mass nominal *uisce*. We will allow x and y to represent portions of *uisce*. For the constitutive role of *uisce* "water" we might therefore have the following:

(28)   Constitutive: *uisce* $(x) \wedge U.M \wedge (x \subseteq U) \wedge (y \subseteq U) \wedge (x.U \equiv y.U)$

$$\bullet (x \subseteq y) \vee (y \subseteq x) \wedge (\mid x.U \mid < \geq \mid y.U \mid)$$

We can read this as follows. We represent *uisce* "water" by the symbol U, a mass noun of type M. Both x and y are portions of *uisce* "water" U and are therefore the same substance. The portion x may be subsumed in y or the portion y may be subsumed in x. The cardinality or amount of portion x can be less than, greater than, or equal to the amount of portion y. For the telic role we might have:

(29)   Telic: **be'**($|x| \geq 1$) & **do'**(actor, [**pred'**(actor, x) & [BECOME **be'**($|x| = 0$)]

The telic role can be understood to mean that 1) a pre-state exists with respect to x such that the amount/cardinality of x is non-zero; 2) some activity predicate characterised by [**do'**(actor, **pred'**[actor, x) operates on x.; 3) a result of the action of the previously mentioned predicate is that the amount of x is now equal to zero.

(30)   *D'ól   Eamonn   an   uisce*
         PVP+drink:V-PAST Eamonn:N the:DET water:N
         Eamonn drank the water

         do'(Eamonn, [**ól'**(Eamonn, (uisce(x), {Q_c, Q_f, Q_t, Q_a}))])
                 & [BECOME **be'**(uisce(x), {Q_c, Q_f, Q_t, Q_a})]

This is then interpreted in aktionsart as telic and as an accomplishment.

Example (31) uses the solution suggested by VanValin & LaPolla (1997) to this problem of mass vs. count nouns in informing the interpretation of event structure. That is, they appeal to the category of the verb under discussion (see Levin 1993 for discussion of verb categorisation for English), and use this category as a means of denoting the endpoint termination trigger. In this example, the verb *ith* "eat" is a verb of consumption and therefore, the endpoint trigger for the termination of the action is represented by the logical operators BECOME **consumed'(y)**. The activity reading does not have these logical operators in its representation. This then is how such utterances are differentiated in logical structure in this framework. We can illustrate the accomplishment/activity readings with the following example pairs.

Accomplishment
(31)   *D'ith   sé   pláta spaigiti   i   deich   nóiméad*
         PVP+eat:V-PAST he:PN plate:N spaghetti:N in:PP ten:NUM minutes:N
         He ate a plate of spaghetti in ten minutes.

         i'(deich nomaid, [**do'**(sé, [**ith'**(sé, pláta spaigiti)]
                 & BECOME **consumed'**(pláta spaigiti))])
         i'(t, [**do'**(x, [**ith'** (x, y)] & BECOME **consumed'**(y))])

Activity

(32) *D'ith   sé   spaigiti   ar   feadh   deich   nóiméad*
PVP+eat:V-PAST he:PN spaghetti:N on:PP until:ADV ten:NUM minutes:N
He ate spaghetti for ten minutes.

ar'(feadh'(deich nomaid, [**do'**(sé, [**ith'** (sé, spaigiti)])]))
ar'(feadh'(deich nomaid, [**do'**(x, [**ith'** (x, y)])]))

Accomplishment

(33) *D'ól   sé   an   beoir   in   uair*
PVP+drink:V-PAST he:PN the:DET beer:N in:PP hour:N
He drank the beer in an hour.

in'(uair, [**do'**(sé, [**ól'**(sé, an beoir)]) & [BECOME **consumed'**(an beoir)]])
in'(uair, [**do'**(x, [**drink'**(x, y)]) & [BECOME **consumed'**(y)]])

Activity

(34) *D'ól   sé   beoir   ar   feadh   uair*
PVP+drink:V-PAST he:PN beer:N on:PP until:ADV hour:N
He drank beer for an hour.

ar'(feadh'(uair, [**do'**(sé, [**ól'**(sé, beoir)])])))
ar'(feadh'(uair, [**do'**(x, [**ól'**(x, y)])])))

These accomplishment examples clearly appeal to the verb category i.e verbs of consumption, as a means to allow logical structure to represent telicity via BECOME **consumed'**(x). In languages such as English, the use of the definite article is often used as a diagnostic of whether a nominal is a mass or count noun. This is somewhat more complex with regard to Irish owing to the simple fact that Irish does not have an explicit indefinite article. The definite article is *an* "the" (singular) and *na* "the" (plural). Absence of the definite article to the left of noun implies that the noun is indefinite by default. The influence of quantised (count) vs. non quantised (mass) participants on the aktionsarten (where quantised → telic and non-quantised → atelic) provides evidence for Irish, as indeed for other languages, that a compositional approach to aktionsart is necessary. This becomes clear from our examination of the semantic representation in logical structure. Of importance to us is the fact that the participant must be overt, explicitly recorded, and elaborated in the logical structure as a macrorole variable. It is only when that macrorole variable in logical structure is elaborated that it is available for interpretation for aktionsart in event structure. This then is an indication that valency is a factor of no small importance in understanding event structure.

7   *Achievements*

Achievements seem to happen instantaneously, being conceptualised as immediate events. This category is inchoative in nature, and has an inherent termination point. Frequently we see an alternation between causative and achievement.

Achievement

(35)   *Bhris   an   gloine*

broke:V-PAST the:DET glass:N

The glass broke.

INGR **bris'**(an gloine)

INGR **bris'** (x)

Causative

(36)   *Bhris   Caoimhín an   gloine*

broke:V-PAST Kevin:N   the:DET glass:N

Kevin broke the glass.

do'(Caoimhín, 0) & CAUSE [INGR **bris'**(an gloine)]

do'(x, 0) & CAUSE [INGR **bris'**(y)]

Achievement verbs can be given an iterative aktionsart by the use of an adverbial qualifier with a scope over the whole utterance indicating that the whole action is repeated upon the occurrence of the event trigger. In the example below the trigger for the continuous repetition of the (causative) achievement action is *gach oiche* "every night".

(37)   *Chuir   Caoimhín   an   madra amach   gach   oiche*

put:V-PAST Caoimhín:N the:DET dog:N out:ADV every:ADV night:N

Kevin put the dog out every night.

gach'(oiche, [**do'**(Caoimhín, [**cuir**(Caoimhín, an madra)

     & CAUSE [INGR **amach'**(an madra)]])])

gach'($t_{iterate}$, [**do'**(x, [**cuir**(x, y) & CAUSE [INGR **amach'**(y)]])])

8 Summary

In this study of the situation types we explored the logical structure underlying the aktionsart classifications of Irish. We looked at states, activities, accomplishments and achievements. For states, we differentiated between the copula and the substantive verb by use a separate operator. The widespread use of the preposition & state/location in logical structure was explicitly captured and this revealed a number of useful generalisations. We also differentiated between the predications of verb and verbal adjective in logical structure and identified the underlying lexicalisation pattern. We discussed the state of possession (with the substantive verb), as against ownership (with the copula) and recorded both in logical structure.

The verbal noun plays a large part in Irish constructions and the logical structure representation underlying this was revealed as: **be'**(x, [**ag'** (**v'**(x))]). When we had uncovered the logical structure of the verbal noun, and therefore the progressive, we used this to describe the difference between perfectivity and imperfectivity in activities. The fragment for perfectives is: **do'**(x, **be'**(…, [**ag'** (**pred'** (x)])), as against **do'**(x, [**pred'**(x)]) for imperfectives. We identified two means by which a mass noun may be coded in logical structure in composition with the matrix verb of the construction so as to deliver the appropriate aktionsarten reading. The first utilised qualia theory and the second appealed to the verb category. In this paper, we represented each of the aktionsart classes in a logical structure. A by-product of using a metalanguage involving logical structure to describe these situation types is that the generalisations underpinning these constructions become visible to inspection, as we have seen.

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