Semantics of Under-Represented Languages in the Americas

Situation types in American Sign Language

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Several kinds of situation types have often been distinguished in the literature: states, activities, semelfactives, achievements and accomplishments. Since these situation types relate to properties of states and events that occur in the world, they are understood in any language. It is at the linguistic level that situation types are claimed to be encoded differently across languages. This paper argues that all five situation types are manifested at the linguistic level in American Sign Language and is thus chiefly concerned with identifying the linguistic means that ASL uses to distinguish one situation type from another. Examples of linguistic means include the ability of a certain morpheme to appear with a verb and the ability of a certain adverbial to appear in a sentence. In identifying the linguistic correlates of situation types in ASL, this paper hopes to offer an interesting cross-linguistic and cross-modal perspective on aspect. For example, the discussion of accomplishments includes two morphemes (xMOVy and HOLD) and two kinds of complex verb constructions.

1. Introduction

The following kinds of eventualities have been traditionally distinguished in English (Vendler 1967). Following Smith (1997), the kinds of eventualities are called situation types and include semelfactives in addition.

(1)   States
        Activities
        Semelfactives
        Achievements
        Accomplishments

A fundamental question is whether these same situation types are encoded at the linguistic level in languages other than English, and by extension, whether these situation types are encoded universally or whether there is cross-linguistic variation in the linguistic expression of them. Offering a perspective on these questions from American Sign Language (ASL), this paper pursues two specific and related research questions:

(i) which situation types are encoded at the linguistic level in ASL, and (ii) how are they manifested in ASL?

To determine whether a situation type is encoded at the 'linguistic level' in a given language, the following criterion is adopted: there must be several grammatical tests, independent of one another, that characterize that situation type differently than the other situation types. The grammatical tests can consist of checking whether a certain morpheme appears on a verb or whether certain kinds of adverbials appear in a sentence.

The linguistic level is distinguished from the conceptual level, on which all of these situation types are understood in all languages, since they relate to semantic properties of states and events that occur in the world. It is at the linguistic level that situation types are claimed to be encoded differently across languages (e.g., Smith 1997). For example, English manifests all five, while Navajo manifests just three.

This paper examines the expression of situation type in ASL in particular for two reasons. First, ASL offers a cross-linguistic perspective in that it has several interesting linguistic elements that interact with the expression of situation type. Second, it offers a cross-modal perspective in that it occurs in the visual-gestural modality, as opposed to the auditory-vocal modality that the widely studied spoken languages occur in, and it is important to determine what the expression of situation type looks like in a different modality in order to evaluate hypotheses about the universal properties of aspect.

This paper proposes that all five situation types are manifested at the linguistic level in ASL. Examples are provided below for each kind. Most of the paper is devoted to providing and demonstrating tests that distinguish each situation type.

(2)   ASL
        States: KNOW, LIKE
        Activities: STUDY, EXPLAIN
        Semelfactives: COUGH, KNOCK
        Achievements: ARRIVE, PASS TEST
        Accomplishments: FILL-OUT FORM, BUILD HOUSE

The structure of the paper is as follows. The paper starts with some background on the theoretical framework that is adopted throughout (Smith's two-component theory of aspect) and on some basic properties of ASL. Then, there is a section for each situation type that outlines the basic properties, gives a temporal schema and provides examples for the situation type. Tests through interaction with grammatical elements are also presented for all the temporal features that the situation type has, and where appropriate, further issues are discussed that are specific to ASL. The paper closes with a summary of the preceding discussion.

2. Background

For its theoretical framework, this paper assumes the two-component theory of aspect (Smith 1997). The two components of aspect refer respectively to situation type and

viewpoint. Viewpoint aspect has to do with how much of a situation we can see: do we see all of it (perfective), some of it (imperfective), or neither (neutral)?

Situation type, on the other hand, concerns the intrinsic temporal properties of an eventuality and is defined in terms of three features that collectively determine its temporal schema, following Smith (1997): dynamism, duration and telicity.

Dynamism is a semantic feature that distinguishes states from events. States do not have agents, while events do, in which case agents provide the energy and volition behind the events. *Duration* indicates the presence of internal stages, distinguishes between activities and accomplishments on the one hand, which have this feature, and semelfactives and achievements, which lack this feature. *Telicity* implicitly encodes the notion of completion, whether partial or complete, and distinguishes the set of accomplishments and achievements which have this feature, from the set of activities and semelfactives.

The following table summarizes the clusters of features that each situation type has.

(3)

	Dynamism	Duration	Telicity
States	-	n/a	n/a
Events			
Activities	+	+	-
Semelfactives	+	-	-
Achievements	+	-	+
Accomplishments	+	+	+

Situation types in ASL constitute the focus of the rest of the paper. To provide a context for the discussion of situation type in ASL, however, some brief remarks are given regarding viewpoint aspect, tense and basic word order in ASL.

With regard to viewpoint aspect in ASL, it seems that neutral viewpoint is the default viewpoint since sentences are ambiguous between perfective and imperfective. ASL may optionally specify a particular viewpoint through the use of markers for perfective (FINISH) and through the use of verbal modulations for imperfective (continuative, iterative).

ASL does not have overt verbal markers for tense, in the absence of which, sentences are ambiguous between past and present tense. Temporal location may be optionally specified through temporal adverbs like YESTERDAY and NEXT-WEEK.

The basic word order in ASL is SVO (Fischer 1975). In addition to the basic SVO word order and various permutations on it such as O,SV in topicalization constructions, there is another construction, SVOV, which is apparently unique to ASL, first documented by Fischer and Janis (1990) and called 'verb sandwiches.' This construction will later become relevant during the discussion of accomplishments.

We now turn to the situation types of ASL and consider each in turn: states, activities, semelfactives, achievements and accomplishments.

3. States

States are situations that do not change, either at a moment or over an interval, and have the feature [-dynamic]. In the following informal temporal schema for states, dashes indicate undifferentiated periods of states while I and F stand for initial and final endpoints respectively, which are not included in the state but are there optionally, as indicated by the parentheses.

(4)   a.   Temporal schema:
                (I) ------ (F)

        b.   Examples:
                KNOW HISTORY 'know history'
                LIKE CHOCOLATE 'like chocolate'
                GO++ CHURCH 'attend church regularly'

States have the feature [-dynamic], meaning that they do not have agents. Below, two tests are presented to show that states do not have agents

The first test is that states are not compatible with imperatives, which imply the presence of an agent. For the imperative form in ASL, there is no overt morpheme that gets affixed to the verb root. Rather, the context of GO AHEAD brings out more clearly the imperative meaning of the sentence.[1]

(5)   a. *   (GO-AHEAD) KNOW HISTORY   (state)
                'Go-ahead (and) know history!'

        b.   (GO-AHEAD) EXPLAIN HISTORY   (event)
                'Go-ahead (and) explain history!'

A second test is that statives cannot appear as complements of verbs like REQUEST, ORDER, and ENCOURAGE while events can, since these verbs require the presence of an agent.

(6)   a. *   I REQUEST [YOU KNOW HISTORY]   (state)
                'I ask you to know history.'

        b.   I REQUEST [YOU EXPLAIN HISTORY]   (event)
                'I ask you to explain history.'

Apart from the basic-level statives seen above, there are also examples of statives that are derived (or coerced) from sentences that are of another situation type. One example is formed from combining frequency adverbials with event sentences, lending a habitual interpretation.

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[1] There is another way to express the imperative, namely, through tensed movement and a non-manual expression in the form of a frown that co-occurs with the verb. It seems to be a intonational marker spreading over the verb phrase more than a discrete grammatical element, so I will not include this example throughout the paper, although it seems to be applicable to all dynamic events.

(7)   I OFTEN STUDY HISTORY
                'I often study history.'

Another way to express a closely related meaning is to attach a habitual morpheme to the verb (Klima and Bellugi 1979), which involves reduplicating a shortened form of the movement in the citation form.

(8)   HISTORY,   I   STUDY+habitual
                'I usually study history.'

Since states are [-dynamic], they do not contain the features for duration nor telicity. For example, since states lack the [durative] feature, they do not co-occur with adverbs of manner that involve certain mouth formations that are made simultaneously with the movement of the hands, which otherwise appear with durative events.

<div align="center">
mm
</div>

(9)   a. #   HISTORY, I KNOW   (state)
                'History, I knew effortlessly.'

<div align="center">
mm
</div>

        b.   HISTORY,   I   EXPLAIN   (event)
                'History, I explained effortlessly (to someone).'

This and other tests for the features of duration and telicity are presented in greater detail below, when we proceed to the category of events, starting with activities.

4. Activities

Activities are events that take place over an interval; the final endpoint does not necessarily have to mark the point of completion. Thus, they have the following temporal schema in which dots denote successive stages of events, and the final endpoint is arbitrary (=F_{Arb}), so that it may be explicit or not.

(10)   a.   Temporal schema:
                I……. F_{Arb}

        b.   Examples:
                WALK 'walk'
                EXPLAIN HISTORY 'explain history'
                STUDY HISTORY 'study history'

Activities have the features [dynamic], [atelic] and [durative]. Tests will now be presented to demonstrate the presence of each feature in sentences that denote activities.

Dynamism: Since activities are events, they have agents so that they can appear in contexts that require the presence of one, i.e. they can appear as imperatives and can appear as complements of verbs like REQUEST.

(11)   a.   (GO-AHEAD) EXPLAIN   HISTORY
              'Go-ahead (and) study/explain history!'

       b.   I REQUEST [YOU EXPLAIN HISTORY]
              'I ask you to study/explain history.'

Duration: Since activities take place over an interval, they have internal stages which can be further modified. It is also possible to specify the length of this interval through durative adverbs. Activities minimally contrast with semelfactives with respect to the feature of duration, so I provide an example of each kind to illustrate the importance of duration for activities.

The first test for duration involves the continuative morpheme, which seems to have the function of extending the interval over which the event unfolds. This can be represented in the above temporal schema by translating the arbitrary final endpoint (F_{arb}) to a point further down on the time line. Under the continuative form, the movement of the verb root is extended for a longer time than in the citation form (Klima and Bellugi 1979). Furthermore, the continuative is not necessarily non-completive.

(12)   a.   THEY   WALK+continuative   (activity)
              'They walked continuously.'

       b. *   THEY   BLINK+continuative   (semelfactive)
              'They blinked continuously.'

The second test for duration comes from the possibility of specifying the length of the interval through durative adverbs. Activity verbs can thus appear with durative adverbs like ONE-HOUR 'for an hour' and ALL-DAY 'for the whole day' among others. [2]

(13)   a.   I WALK ONE-HOUR   (activity)
              'I walked for an hour.'

       b. *   I BLINK ONE-HOUR   (semelfactive)
              'I blinked (once) for an hour.'

Another test for duration is the ability to combine with adverbs of manner that describe the speed and/or manner at which the event unfolds over the interval. In ASL, it is possible to modify many verb stems to indicate that the denoted event took place slowly or fast, as indicated in (14). It is also possible to specify manner through particular mouth formations mentioned earlier. Examples of mouth formations include the 'th' mouth formation, which adds the meaning that the action was done carelessly, and the 'mm' mouth formation, which adds the meaning that the action was done effortlessly.

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[2] There are two variants of ONE-HOUR. The variant under discussion here, which unambiguously specifies duration, involves no orientation change in the dominant hand. The other variant, which involves twisting the dominant arm so that the back of the hand lands on the palm of the nondominant hand, remains to be investigated further as to whether it conveys completion in addition to duration.

The function of these adverbs of manner can be represented in the above temporal schema by increasing (for 'fast') or reducing (for 'slow') the number of internal stages between the initial and final endpoints but otherwise keeping the distance between the endpoints constant. These adverbs of manner may co-occur with the continuative morpheme as well, in which case the distance between the endpoints is lengthened as well. Since adverbs of manner affect the interval, it follows that compatibility with such adverbs presupposes the existence of an interval.

Activity verbs, containing duration, may appear with such adverbs of manner, in contrast to semelfactives.

(14) a. WALK+slow/fast   (activity)
          '(They) walked slowly/fast.'

      b. * BLINK+slow/fast   (semelfactive)
          '(They) blinked (once) slowly/fast.'

                                    _____mm_____
(15) a. HISTORY, I   STUDY   (activity)
          'History, I studied leisurely.'

                    _____mm_____
      b. * I   COUGH   (semelfactive)
          'I coughed effortlessly.'

We will see later that such adverbs of manner appear not just with durative verb constellations; they appear only with atelic durative verb constellations, namely Activities.

Telicity: We turn to the next feature, telicity, which is missing from Activity verbs. One way to see this is to contrast them with accomplishments, which have this feature. One minimal pair consists of sentences with non-countable vs. countable objects.

(16) a. I EAT APPLE   (activity)
          'I ate apples.'

      b. I EAT TWO APPLE   (accomplishment)
          'I ate two apples.'

Some examples, like EAT, may appear as intransitives, in which case they are activities. They may also appear with a bare object NP like APPLE, which is ambiguous between a nonspecific (noncountable) plural reading and a specific countable object. When the NP is used in the first sense, the verb constellation remains an activity. When the second sense is used, however, the verb constellation is a derived accomplishment. The second sense is brought out more clearly when we add a specific numeral, as in EAT TWO APPLE, which is an accomplishment.

The contrast is further confirmed through interaction with the continuative morpheme. Activities are durative and compatible with the continuative morpheme, as seen above.

When a direct object is added, as in the following example, there is 'object shift' to the beginning of the sentence in the presence of the continuative morpheme (Liddell 1980). The ungrammatical status of (17b), which can be attributed to a clash between a specific countable object and the continuative morpheme, reveals the atelic property of Activities.

(17)   a.   APPLE, I EAT+continuative
                  'Apples, I ate continuously.'

        b. *   TWO APPLE,   I   EAT+continuative
                  'Two apples, I ate continuously.'

Another standard test for telicity comes from contrasts between 'spend time' type of verbs and 'take time' type of verbs. Atelic verb constellations are compatible with 'spend' (*I spent an hour writing*), while telic verb constellations are compatible with 'take' (*Writing the letter took me one hour*). Since activity verbs are atelic, they should appear with 'spend' and not with 'take' and vice versa for accomplishments.

While ASL has a sign (REQUIRE) that is similar to 'take', it is difficult to find an analogue for 'spend.' ASL has a sign, SPEND, but it has a different argument structure than English 'spend.' While the English word subcategorizes for a quantity of time and the activity itself, the ASL version subcategorizes only for the quantity of time, i.e. one can say in ASL "I spent one hour (on it)" but not "I spent one hour swimming."

Given the absence of a linguistic element contrasting with REQUIRE, we have a 'half-test' making it a pragmatic type of test at best. Activities are pragmatically odd with REQUIRE, but not accomplishments.

(18)   a. #   WALK, THAT   REQUIRE   45 MIN   (activity)
                  'Walking takes 45 minutes.'

        b.   DRAW CIRCLE, THAT   REQUIRE 1   MIN   (accomplishment)
                  'Drawing a (complete) circle takes 1 minute.'

It is pragmatically odd to use REQUIRE with WALK, since the implication is that all instances of walking take 45 minutes, which is not the case.

This test also helps confirm the contrast between sentences with non-countable objects (= activities) and sentences with countable objects (= accomplishments), as seen below.

(19)   a. #   EAT APPLE, THAT   REQUIRE   5 MIN   (activity)
                  'Eating apples takes 5 minutes.'

        b.   EAT ONE/TWO APPLE, THAT REQUIRE 5 MIN (accomplishment)
                  'Eating one apple/two apple takes 5 minutes.'

5. Semelfactives

The next situation type, semelfactive, refers to events that consist of a single state and do not have any result or outcome. In the schema below, E indicates a single-stage event.

(20)   a.   Temporal schema:
            . . . E . . .

        b.   Examples:
            COUGH 'cough'
            KNOCK 'knock'
            FOOT-TAP 'tap a foot'

While semelfactives refer to one instance of an action, these instances tend to be repeated in discourse so that the above examples become derived activities. The distinction is clear in ASL: countable instances of movement conveys the semelfactive, while uncountable reduplication of movement conveys the corresponding derived activity. Keep in mind that the following examples involve just semelfactives, i.e. one stage of the event, and not the corresponding derived activities.

Semelfactives contain the features [+dynamic], [-durative], and [-telic]. Tests are now shown to indicate the presence of these features in semelfactives.

Dynamism: Being [+dynamic], semelfactives have agents and so can appear in contexts that imply the presence of an agent, e.g. imperatives and complements of REQUEST.

(21)   a.   (GO-AHEAD) KNOCK
            'Go-ahead (and) knock!'

        b.   I REQUEST [YOU KNOCK]
            'I ask you to knock (the door).'

Duration: Semelfactives lack duration, so it is not possible to use the continuative morpheme, durative adverbs, nor adverbs of manner with semelfactives, since all of these elements assume the presence of an interval.

(22)   a. *   THEY COUGH+continuative
            'They coughed continuously.'

        b. *   I COUGH ONE-HOUR
            'I coughed for an hour.'

        c. *   COUGH+slow
            '(They) coughed slowly.'

                   $\overline{\text{\quad th}}$
        d. *   I   COUGH
            'I coughed carelessly.'

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If we take the continuative morpheme to be one kind of an imperfective marker, this data is consistent with the general fact that imperfective viewpoint is not available for semelfactives generally (Smith 1997).

Telicity: Like activities, semelfactives are atelic and should pattern like activities with respect to the tests for telicity. One test involves adding countable objects, which coerces an accomplishment (and therefore telic) reading. It is difficult to apply the test to semelfactives, since most semelfactives in ASL tend to be intransitive and do not allow the addition of an internal argument.

With respect to the pragmatic test involving REQUIRE, like activities, semelfactives cannot appear with REQUIRE, because they imply a natural endpoint that is not present in semelfactives. Hence semelfactives contrast with achievements in this feature.

(23) a. # COUGH REQUIRE 45 MIN   (semelfactive)
               'Coughing takes 45 minutes.'

      b.   WIN GAME REQUIRE 45 MIN   (achievement)
              'Winning the game takes 45 minutes.'

6. Achievements

We now turn to achievements, which are events that occur in a moment and that involve a change of state in the end. The temporal schema for achievements is shown below. As in the temporal schema for semelfactives, E stands for a single-stage event, with the addition of a subscript R indicating some result of the event.

(24) a.   Temporal schema:
              $\ldots E_R \ldots$

      b.   Examples:
              ARRIVE 'arrive'
              PASS TEST 'pass a test'
              WIN GAME 'win a game'

As the following tests show, achievements have the features [+dynamic], [-durative], [+telic].

Dynamism: Like the other types of events seen so far, achievements have agents so they can appear in contexts that imply the presence of an agent, i.e. imperatives and complements of REQUEST. There are some achievements that may seem odd in these contexts, because agents do not necessarily have full control over the outcome of the event (e.g. WIN GAME may depend in part on luck), but it is possible to find other examples like ARRIVE where the agent presumably has more control over the outcome.

(25) a.   PLEASE ARRIVE ON-TIME
              'Please arrive on time!'

      b.   I REQUEST [YOU ARRIVE ON-TIME]
              'I ask that you arrive on time.'

(26) a. *   PASS TEST ONE-HOUR   (achievement)
              'They passed the test for an hour.'

      b.   HOUSE BUILD ONE-MONTH   (accomplishment)
              'They built the house for one month.'

Otherwise, both achievements and accomplishments do not appear with the continuative morpheme and with adverbs of manner due to the fact that they are both telic.

(27) a. *   TEST PASS+continuative   (achievement)
              '(They) passed the test continuously.'

      b. *   HOUSE BUILD+continuative   (accomplishment)
               '(They) built the house continuously.'

(28) a. *   TEST PASS+slow   (achievement)
               '(They) passed the test slowly.'

      b. *   HOUSE BUILD+slow   (accomplishment)
               '(They) built the house slowly.'

                        __th__
(29) a. *   TEST PASS   (achievement)
              '(They) passed the test carelessly.'

                         __th__
      b. *   HOUSE BUILD   (accomplishment)
              '(They) built the house carelessly.'

As with semelfactives, if we take the continuative morpheme to be one kind of an imperfective marker, it is consistent with the general fact that imperfective viewpoint is not available for achievements.

Telicity: Achievements are telic, since they have a natural endpoint. One test of telicity that was used to distinguish between activities and accomplishments does not apply here, because that test also requires the feature of duration for the test to work, since objects, whether countable or not, depend on duration in order for the event to affect them.

The pragmatic test of REQUIRE helps to distinguish between achievements and semelfactives, as seen above. Because achievements have a natural endpoint, it follows that they can appear with REQUIRE since they imply a natural endpoint as well.

(30)   a.   WIN GAME   REQUIRE 45 MIN   (achievement)
                'Winning the game takes 45 minutes.'

       b. *   COUGH   REQUIRE 45 MIN   (semelfactive)
                'Coughing takes 45 minutes.'

Another standard linguistic test of telicity involves the contrast between adverbials like 'in an hour' which appear with telic predicates vs. 'for an hour' which appear with atelic predicates. It remains to be seen whether this test can be reconstructed for ASL (see footnote 2).

Yet another standard linguistic test of telicity is whether the predicate can be combined with a verb of completion (*finish*, *complete*) as opposed to a verb of termination (*stop*). ASL has a sign glossed as FINISH, which does not seem to function as a verb like English *finish*. Rather, it is suggested that FINISH functions as a perfective marker, as it can appear with both telic and atelic predicates, For this reason, it is not a useful test of telicity. ASL also has a sign corresponding to English *complete*, but unlike its English counterpart, the ASL sign tends to select a noun phrase (e.g. COMPLETE GRANT PROPOSAL) rather than a verb phrase (as in COMPLETE WRITE PROPOSAL), so again, it is difficult at this point to construct a clear test.

Based on the tests above, we may conclude that achievements are dynamic, instantaneous and telic. We now proceed to the last situation type, accomplishments.

7. Accomplishments

Accomplishments are events that take place over an interval and culminate in completion at the end of the interval. In the temporal schema below, I and F stand for initial and final endpoints respectively, while the subscript on F stands for 'natural result' to indicate a natural endpoint for the event.

(31)   a.   Temporal schema:
                I……..F $_{Nat R}$

       b.   Examples:
                FILL-OUT FORM 'fill out a form'
                BUILD HOUSE 'build a house'
                WRITE PAPER 'write a paper'

The following tests are intended to demonstrate that accomplishments possess the features of [+dynamic], [+durative], and [+telic].

Dynamism: Accomplishments pass all the tests for dynamism since they have agents and so can appear in contexts that call for the presence of one: imperatives and complements of REQUEST-like verbs.

(32) a.   (GO-AHEAD) FILL-OUT   FORM
             'Go-ahead (and) fill out the form!'
      b.   I REQUEST [YOU   FILL-OUT   FROM]
             'I ask that you fill out the form.'

Duration: Unlike achievements, accomplishments have the feature of duration, which can be further modified by durative adverbs.

(33)   FORM,   FILL   ONE-HOUR
             '(They) filled out the form for an hour.'

While the durative property of accomplishments should make them compatible with the continuative morpheme and adverbs of manner as well, it is the telic property of accomplishments that rules out this possibility.

(34) a. *   FORM,   FILL-OUT+continuative
             '(They) filled out the form continuously.'

      b. *   FORM, FILL-OUT+slow
             '(They) filled out the form slowly.'

                              $\overline{\quad\quad\text{mm}\quad}$
      c. *   FORM,   I   FILL-OUT
             'The form, I filled out easily.'

Telicity: Accomplishments also have the feature of telicity. We have already seen this in the contrast with activities with respect to countable vs. noncountable objects.

(35) a.   TWO APPLE, I EAT   (accomplishment)
             'Two apples, I ate.'

      b.   TWO APPLE,   I EAT(+continuative)   (activity)
             'Two apples, I ate (continuously).'

The telicity of accomplishments can also be seen in their compatibility with 'take-time' type of verbs like REQUIRE, which follows from the fact that they have a natural endpoint.

(36)   FILL-OUT FORM REQUIRE 45 MIN
             'Filling out the form takes 45 minutes.'

Another characteristic of accomplishments is that they are ambiguous when combined with 'almost.' This is true in languages where the syntax is ambiguous with respect to the scope of 'almost' and is the case for ASL as well. Thus 'almost' may take scope over the durative feature and contribute the meaning that the process almost started, or it may take scope over the telic feature and contribute the meaning that the process was almost completed.

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There is a sign native to ASL that corresponds to 'almost' and that is made with the F-handshape (thumb and index finger contacting each other, with other fingers spread apart and the radial side of the hand facing the forehead) moving away from the temple, with clenched teeth. We can see the ambiguity through the fact that the accomplishment sentence is compatible with adjuncts that specify either meaning.

(37)   a.   ALMOST BUILD HOUSE, BUT NO MONEY
             '(They) almost built the house, but had no money (so they never started).'

       b.   ALMOST BUILD HOUSE, BUT NOT FINISH
             '(They) almost built the house, but did not finish (so they never completed it).'

While the ambiguity with 'almost' attests to the two features that accomplishments have (duration and telicity), it is not a test of telicity per se, since it does not help to distinguish between accomplishments and activities, nor between achievements and semelfactives, since there is only one meaning possible when 'almost' is combined with the latter three situation types.

More cases of accomplishments: ASL presents further cases of accomplishments, some of which are unique to this language and are therefore of cross-linguistic and cross-modal interest.

(i) FLY vs. FLY+xMOVy

ASL has a class of verbs that use signing space, called 'spatial verbs' which all involve the notion of PATH, complete with source and goal arguments (Padden 1983).[3] Examples of ASL verbs that use signing space in this way, apart from FLY, include DRIVE-TO, WALK(CL-two legs), and MOVE. All of these verbs can also be plain verbs, as explained below.

The physical space in front of the signer can be used to refer to non-present entities, including locations. Thus to indicate that I flew to Austin, I set up a location in the signing space that refers to Austin, and then adjust the sign for 'fly' so that the sign is directed toward the location of Austin.

(38)   aAUSTIN   FLY(a)
             '(I) flew to Austin.'

When these verbs use signing space, as notated by a letter following the verb, e.g. FLY(a), they become derived accomplishments because we see a natural endpoint to these events.

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[3] In Padden's (1983) typology of verbs in ASL, there are three classes: agreeing, spatial and plain. Agreeing verbs assign the thematic roles of agent and patient to their arguments and show agreement with them, while plain verbs do not show any agreement.

These same verbs also do not have to use signing space, in which case they are plain verbs. In such cases, they refer to activities. Thus FLY refers to the activity of flying; DRIVE refers to the activity of driving, etc. These forms of verbs can be used in a context where the focus is on the activity itself, and not on the endpoints of the activity. For example, if one asks how people arrived in Dallas, one can answer appropriately with FLY or DRIVE without incorporating signing space.

I propose that FLY(a) contains an abstract morpheme called xMOVy, which is separate from the movement that is part of the lexical entry of FLY. This morpheme comes with an argument structure that specifies the source and goal of PATH in the sense of Meir (1998), which are correlated with the subscripts x and y respectively.[4] When it is combined with a verb like FLY, it adds the arguments of source and goal to the argument structure of FLY. Content for the locations of x and y in signing space is determined by spatio-temporal conceptual structure (Klima and Lillo-Martin 1990, Lillo-Martin 2002, Rathmann and Mathur 2002, see also Liddell 2000), the result is that the movement of the verb proceeds from the location associated with the source (= x) to the location associated with the goal (= y).

The morpheme xMOVy stands in contrast to another morpheme that is glossed simply as MOV. The latter morpheme does not contain source and goal arguments (hence there are no subscripts) and conveys an activity, specifically an activity of motion. This can be seen by the possibility of further modifying this morpheme with adverbs of manner (e.g. FLY+MOV+'slow'). As with xMOVy, the content of MOV is provided by spatio-temporal conceptual structure.

Now let us return to xMOVy. It is not the content of the morpheme that matters here. Rather, it is the distinction between the absence of xMOVy morpheme as in FLY and the presence of the xMOVy morpheme as in FLY(a) that is directly relevant to the issue at hand. This xMOVy morpheme, while devoid of (lexical) phonological content, is the linguistic element that contributes a telic reading to FLY(a), i.e. it derives an accomplishment out of the activity FLY.

The contrast between FLY and FLY(a) can be seen through the telicity test, since the main difference between activities and accomplishments is whether they contain the feature of telicity or not.

(39)   a. #   FLY   REQUIRE   45   MIN   (activity)
              'To fly takes 45 minutes.'

       b.   aAUSTIN dDALLAS (a)FLY(d) REQUIRE 45 MIN   (accomplishment)
              'To fly from Austin to Dallas took 45 minutes.'

It is pragmatically odd to use REQUIRE with the plain form of FLY, since the implication is that all instances of flying take 45 minutes, which is not the case. However, it is felicitous if it is uttered in the air, in which case one presumably knows where they are

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[4] While Meir (1998) uses PATH in her analysis of agreeing verbs in the sense of Padden (1983), I assume that PATH appears only in spatial verbs.

flying to and is assumed to be referring to that particular instance of flying when uttering that sentence.

The distinction between FLY and FLY(a) is analogous to the distinction between 'I walk' and 'I walked to the park.' The distinction in English is clearly marked by a linguistic element, namely the preposition 'to' and the phrase it heads. The question is, what is the linguistic element, if any, that marks the distinction between FLY and FLY(a)?

(ii) CL-MOV vs. CL-MOV+HOLD

Under the category of 'spatial verbs,' there are also several kinds of classifier predicates in ASL which use signing space. We will be concerned with what has been called 'semantic classifiers' (Supalla 1986). There are classifiers, in the form of handshapes, for classes of nouns, like persons, animals and vehicles. These are combined with a movement component to show the motion of the referent. The referents must be explicitly introduced in the discourse first, so that they serve as antecedents for the classifier constructions. An example is given below.[5]

(40)   DH: CARi(figure)   VEHICLE-CLi+MOV-'past-tree'
        ND: TREE(ground) --|
               'A car moved, passing the tree.'

These sentences describe activities, since they describe events that place over time and so have duration. They do not necessarily have a natural endpoint.

Now there is a morpheme called HOLD which abruptly stops the movement of the hand at some point along the path.[6] Like the above MOV morpheme, HOLD is an abstract morpheme, meaning that it does not contain overt (lexical) phonological content; rather, the content comes from spatio-temporal conceptual structure which determines the point at which the movement of the articulators is interrupted. If we separate the content from the entity that contains it, it is possible to identify HOLD independently as a morpheme. HOLD is applied to MOV and contributes telicity to the activity that is conveyed by MOV. That is, it contributes an endpoint to the activity conveyed by MOV, somewhat like the goal endpoint conveyed by the 'y' subscript of xMOVy.

(41)   DH: CARi(figure) VEHICLE-CLi+[MOV-'past-tree'+HOLD]
        ND: TREE(ground) ---|
               'A car moved up to a point past the tree.'

When the HOLD morpheme is attached, the resulting meaning is then that the event started and was interrupted at some point along the path, coming to an end. Given that an endpoint is conveyed in addition to duration, attaching the HOLD morpheme has the consequence of deriving an accomplishment from an activity. As it turns out, this is true

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[5] In the following notation, DH stands for 'dominant hand' and ND for 'nondominant hand'. The notation indicates that TREE is first signed with the nondominant hand; then the next two signs are articulated with the dominant hand. The dashes following TREE indicate that the nondominant hand that articulated TREE remains in place throughout the articulation of the dominant hand.

[6] This form has also been called 'unrealized inceptive' (Liddell 1984).

not just for activities that involve classifier constructions but also for activities more generally. For example, attaching HOLD to a simple Activity like WALK results in a derived accomplishment too.

There is a distinction between (40) and (41).[7] This alternation between classifier predicates and those with the HOLD morpheme can be tested with a question about the length of the time required for the event to transpire, since the distinction between the two is one of telicity. As shown in (42a), it is pragmatically odd for Speaker B to ask about the activity described by Speaker A, but not so in (42b) when the event described by Speaker A is an accomplishment.

(42)   a. Activity
        Speaker A: DH: CARi(figure)   VEHICLE-CLi+MOV
                   ND: TREE(ground) ---|
                        'A car moved, passing the tree.'
        Speaker B: #   HOW LONG?
                        'How long did it take?'
        Speaker A: 45 MIN
                        'It took 45 minutes.'

        b. Accomplishment
        Speaker A: DH: CARi(figure)   VEHICLE-CLi+MOV+HOLD
                   ND: TREE(ground) --|
                        'A car moved up to a point past the tree.'
        Speaker B: HOW LONG?
                        'How long did it take?'
        Speaker A: 45 MIN
                        'It took 45 minutes.'

The proviso regarding the activity sentence with FLY applies here as well. Speaker B's response in (42a) is not ungrammatical. It is only pragmatically odd if we do not know the endpoint of the path of movement, e.g. if it is not specified earlier in the discourse.

(iii) Complex verb constructions

ASL exhibits a variety of complex verb constructions in which there are two predicates in a given sentence. One predicate is the main verb while the other predicate adds information about the event denoted by the first predicate. Some of these constructions have been referred to as 'verb sandwiches' (Fischer and Janis 1990). I discuss two kinds here: (a) instrumental verb constructions and (b) resultative verb constructions. While the first kind is often used to describe an activity, it provides a useful contrast to the latter kind, which is a derived accomplishment.

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[7] This kind of distinction has also been noticed by Wood and Wilbur (2000) in their discussion of the example 'The boat floated under the bridge.'

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(a) Instrumental verb constructions

While the first predicate describes an activity, the second specifies the instrument with which the activity is carried out.

(43)   CLEAN ROOM SWEEP+with-broom
             '(They) cleaned the room with a broom.'

The second predicate incorporates the instrument by adjusting the handshape to reflect the particular hand configuration for handling the instrument. In the above example, CLEAN does not contain any information about the instrument used. Adding a second predicate where the handshape of this sign resembles handling a broom (two fists, one on top of another) adds the meaning that the act of cleaning is done with a broom.

Two tests indicate that the overall verb constellation in the above example is an activity. First, the second predicate may be felicitously combined with a continuative morpheme in the same sentence. Second, the second predicate may be modified by an adverb of manner like the mouth formation 'mm' and/or changing the speed of the movement. Recall that both tests are diagnostics for an Activity, and since the above construction passes these diagnostics, the conclusion is maintained that the instrumental verb construction is an Activity.

While the overall verb constellation tends to be an activity, as illustrated by the above example, the verb constellation may be an accomplishment in some cases, depending on the object, as in HAMMER NAIL HAMMER-into-wall-with-machine, where the completion of the event is implicit.

(b) Resultative verb constructions

While the above instrumental verb constructions can be either Activities or Accomplishments, there is another kind of complex construction that is always a derived Accomplishment. I call these 'resultative verb constructions.' They involve a main predicate which names the Activity and a particle which shows both the process (= Activity) and the outcome of the Activity described by the main predicate. The verb constellation consisting of the main predicate, the direct object, and the particle is a derived Accomplishment. Several examples are provided below.

(44)   a.   DRINK WATER EXTENT-down
              '(They) drank a glass of water empty.'

        b.   DRAW CIRCLE OUTLINE-circle
              '(They) drew a circle in a complete circle.'

        c.   HAMMER METAL FLAT-down
              '(They) hammered a metal flat.'

They differ from English resultative constructions (e.g. *I hammered the metal flat*) in that in English, the process is denoted by the main verb while the resulting state of the theme

is usually conveyed by an adjective. In ASL, the process involving the agent is denoted by the main verb, while the process of change and the resulting state in the theme is denoted by a particle in ASL.

ASL has a class of particles that indicate extent, as in the volume of water that has been consumed from a glass or as in the extent to which a piece of metal is hammered flat. Such particles allows modification so as to indicate full or partial completion by varying the aperture of the handshape (e.g. the distance between the thumb and the fingers). This is another difference from English: 'draw a circle' does not indicate whether the circle is completed; it is possible that one started to draw a circle and then ended up drawing something else. However, it is possible to see the difference in ASL, since how much is completed is conveyed iconically. This is because the content of the particle, as with the MOV and HOLD morphemes, is obtained from spatio-temporal conceptual structure. It is interesting, then, that the duration of the change of the state is transparent in ASL.

What the particles contribute to the verb constellation is telicity. The particles convey a scale on which the quantity of the theme (direct object) is affected; moreover, they convey the quantity being affected over time (cf. Krifka 1998). The particles thus express when the quantity being affected over time reaches a bound. It is in this sense that the particles contribute an endpoint to the activity denoted by the main predicate and therefore make the verb constellation telic.

In the first two examples, the verb constellation minus the particle is an Activity. When the particle is added, the resulting verb constellation is an Accomplishment. In the last example, the verb constellation minus the particle is also an Activity, but one that is derived from a Semelfactive. The Semelfactive form involves one movement, while the derived Activity involves reduplication of that movement. When the particle is combined with this derived Activity, we still get an Accomplishment.

It is true that all the verb constellations are accomplishments regardless of whether the completion is partial or not. This is because the event still has started and has come to a point along the path to its goal state, whether intended or interrupted.

Two tests confirm this conclusion. On the first test, assuming that the process is complete, it is possible to add REQUIRE 5 MIN 'requires five minutes', which is a test of telicity. Since the above constellations allow the addition of REQUIRE 5 MIN, they pass the test for telicity. On the second test, it is not possible to modify the particle with the continuative morpheme nor with adverbs of manner like the mouth formations or adjusting the speed of the movement. This, combined with the result of the first test, suggests that the verb constellations are no longer Activities but derived Accomplishments.

8. Summary

So far various tests suggest that ASL encodes all five situation types at the linguistic level. We have seen that each situation type is characterized by certain features (dynamism, duration, and/or telicity), and we have seen how each situation type passes the tests for the features that it has.

We have also seen several cases of derived situation types:

(45)   a.   Event + habitual interpretation --> derived Stative
        b.   Semelfactive + reduplication --> derived Activity
        c.   Activity + specific countable object --> derived Accomplishment
        d.   Activity + xMOVy --> derived Accomplishment
        e.   Activity + HOLD morpheme --> derived Accomplishment

Even though ASL presents unique constructions such as non-manuals, non-concatenative morphemes, and complex verb constructions, they still manifest the same situation types seen in other languages.

In conclusion, if we group together ASL with other signed languages as one set of natural languages, it is justified to include this set within the greater cross-linguistic typology of aspect that includes spoken languages.

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