The semantics of object case alternations in Kwak'wala[*]

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1. Introduction

This paper explores the semantic factors underlying object case marking in Kwak'wala, a Wakashan language spoken on the central coast of British Columbia. There are two enclitic case markers in Kwak'wala, $=\chi$ 'accusative' and $=s$ 'oblique'. Some verbs require that an internal argument be marked accusative (1), some require oblique (2), and some allow what appears to be the 'same' argument to appear with either case marker (3). In what follows I will refer to these verb groups as 'strict accusative', 'strict oblique', and 'alternating' verbs, respectively.

(1) *hiłʔiduχ Saraχʷa kiƛəm.*
     hił-xʔid[†]   =uχ   Sara   =χʷ=a   kiƛəm
     fix-bec   =3med Sara   **=acc.3med**=det   fishing.net
     'Sara is fixing/fixed the fishing net.'[‡]

(2) *ʔəlkʷuχ alien-ə́sa ƛaχʷstu ʔəlkʷa.*
     ʔəlkʷ   =uχ   alien   **=s**=a   ƛaχʷstu ʔəlkʷ-a
     blood   =3med alien   **=obl**=det   red.colour   blood-fv
     'The alien bleeds/bled red blood.'

(3) *nəpidida bəgʷanəm{sa siwayu / χa siwayu}.*
     nəp-xʔid   =i=da   bəgʷanəm   **=s**=a / =χ=a   siwayu
     throw-bec   =3dist=ost   man   **=obl**=det / **=acc**=det paddle
     'The man is throwing/threw a paddle.'

[†] Glossing abbreviations are listed and annotated in an appendix following the main text.
[‡] Sentences that are unmarked for tense can have past or present reference, as reflected in the translations that are provided.

Data from modern fieldwork reveals that a significant proportion of transitive roots allow the alternation in (3). This raises questions about what factors license it. Is object case marking in Kwak'wala determined purely by structural factors? Or is there a semantic explanation for why verbs fall into case-marking groups that they do?

Looking for clues in earlier descriptive work on the language, we find Boas (1911, 1947) using a mixture of syntactic and semantic terminology to describe the case system. Thus while Boas refers to $=\chi$ as 'objective' case and explicitly associates it with the syntactic category of direct object, he labels $=s$ as an 'instrumental' case, a label with a somewhat more semantic flavor. That Boas' nevertheless found 'instrumental' to be a misleading label for many uses of $=s$ is revealed in the following passage:

> "The number of cases in which the object used in an action is expressed by the instrumentalis [$=s$] is very large. In most of these [instances where the instrumental is used] we rather conceive the action as done *to* the object." (Boas 1947: 285; emphasis KS)

In other words, Boas observes that the set of arguments that receive oblique ($=s$) marking in Kwak'wala does not align with what we intuitively might classify as 'instruments'. Not only that, but many oblique ($=s$) marked arguments resemble accusative ($=\chi$) marked arguments in their thematic properties. What these observations together suggest is that accusative and oblique marking are not, in fact, semantically contrastive – at least not in a way that is intuitively obvious from a thematic role perspective. Interestingly, Boas did not draw much attention to the alternation in (3), thereby creating the impression that some of the verbs which alternate today may have once been strict.[§] Outside of presenting lists of examples, Boas (1911, 1947) in fact generalizes relatively little about the distribution of case markers, commenting for instance on lexical suffixes such as –*o* 'off' which do not co-occur with oblique $=s$ (Boas 1947: 286). In order to control for the possibility that changes in case markers' distribution have occurred since Boas' era, I will focus below on data exclusively drawn from modern fieldwork.

In what follows I will present a semantic account of object case marking that explains why verbs pattern as they do with respect to the groupings introduced in (1)-(3). In particular, my aim is to motivate a theory in which object case-marking in Kwak'wala is determined by subevental structure: arguments introduced by oblique $=s$ participate in an initial subevent, while those introduced by accusative $=\chi$ participate in a non-initial subevent. Alternating verbs are precisely those verbs which entail that a single event participant takes part in both initial and non-initial subevents. In presenting this theory I will be defending the strong claim that whether a verb is strict accusative, strict oblique, or alternating in Kwak'wala can be predicted on the basis of the verb's lexical semantics.

The remainder of the paper proceeds as follows: in section 2 I outline three empirical arguments for case-marking being semantically determined; then in section 3 I present my analysis of object case marking as determined by subevental structure; and in

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[§] Patterns of speaker variation provide tentative support for this hypothesis. Thus while all consultants I have worked with allow the alternation in (3) with a core set of verbs, one consultant disallows it with certain verbs (e.g. verbs of giving and throwing), treating these verbs as strict oblique in line with what was reported in Boas (1911, 1947). More work on this question is needed involving meticulous comparison of modern data with the vast body of textual materials assembled by Franz Boas and George Hunt.

section 4 I briefly consider two alternative analyses. Section 5 concludes with a discussion of some remaining questions the theory faces, as well as implications for a general theory about how lexical semantics and alternations in object marking relate.

2. Arguments for a semantic basis to case-marking

In this section I discuss evidence for object case-marking being semantically determined. In particular, I present evidence from correlations between semantically-defined verb classes and case marking (2.1), evidence from substitution tests and coercion (2.2), and evidence from what I'll refer to as 'perspectival asymmetries' within verb pairs (2.3).

2.1 Evidence from verb classes

The first kind of evidence for there being a semantic basis to case-marking comes from looking at generalizations about which verbs pattern as strict-accusative, strict-oblique, and alternating. The table in (4) summarizes my findings to date concerning which verb classes' members fall into each of these three categories, along with one or two example verbs from each class. What is significant here is that verbs which have the same case-marking patterns fall into verb classes that are semantically-defined. Were case marking a purely syntactic phenomenon, we may not expect the distribution of case markers to be semantically coherent to the extent that it appears to be.

(4)   *Case-marking groups and semantically defined verb classes*[**]

Strict =χ	Strict =s	Alternating
Verbs of creation	Verbs of emission	Change of possession
-(g)ila 'make'	ʔəlkʷ- 'bleed'	ċo- 'give'
Disassemble verbs	Leave verbs	Verbs of putting
ǧʷiǧʷəɫċənd 'take apart'	bo- 'leave'	ʔəχʔaƛ- 'put on'
Verbs of ingesting	Manner verbs with	tikʷ- 'hang'
haṁ- 'eat'	cognate objects	Verbs of combining
Verbs of change of state	kiƛ- 'fish (with net)'	xʷit- 'stir, mix'
yaχ- 'melt'	Psych verbs ('of …',	Bodily processes
Verbs of contact	'about …')	kʷis- 'spit'
məx- 'hit with fist'	maχċ- 'ashamed'	Verbs of saying
Verbs of obtaining	kəɫ- 'afraid'	ṅik- 'say, tell'
-uƛ 'get'		Verbs of thinking
Verbs of perception		gigəʔeq- 'ponder'
duqʷ- 'see'		Psych verbs (various)
Admire verbs		ƛiq́- 'jealous'
xil̓- 'admire'		χʷinat- 'irked'

This is, admittedly, fairly weak evidence for case-marking being semantically-determined, as it is also consistent with a scenario in which Kwak'wala's case-system was semantically-transparent at an earlier diachronic stage but has lost this transparency through grammaticalization. Note that in general, as case systems age, semantic

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[**] The names of verb classes in (4) are adapted from ones in Levin (1993), with some changes.

transparency in case-marking may be obscured through accrued changes (Mithun 1991). It's worth mentioning then in this context that Kwak'wala is the only Wakashan language to obligatorily case mark all internal arguments, and that this system of obligatory case-marking appears to have developed recently in the language (Sardinha 2011). The fact that case-marking in Kwak'wala is historically recent therefore increases the plausibility that the system is (still) semantically transparent, as well as accessible to L1 learners.

2.2   Evidence from substitution tests

A stronger source of evidence that case marking has a semantic basis comes from case substitution tests, where substituting the 'wrong' case results in coercion. The verb *t̓us-* 'cut', for instance, takes an accusative-marked internal object: substituting oblique case coerces an instrumental reading (5). The verb *ǧəls-* 'paint' takes an oblique-marked internal object that is interpreted as the medium used in painting. Substituting accusative case coerces an interpretation of this argument either as naming the image being depicted through painting, or the patient undergoing painting (6), though this latter interpretation is anomalous.

(5)   a.   *t̓usʔidi Karenχa ʔabəls.*
               t̓us-xʔid   =i   Karen =χ=a   ʔabəls
               cut-bec   =3dist Karen =**acc**=det   apple
               'Karen is cutting/cut the apple.'

       b.   # *t̓usʔidi Karensa ʔabəls.*
               t̓us-xʔid   =i   Karen =s=a   ʔabəls
               cut-bec   =3dist Karen =**obl**=det   apple
               Speaker's comment: "You're saying she used the apple to cut with."

(6)   a.   *ǧəlsuχda c̓ədaqəsa ƛ̓iṅa.*
               ǧəls   =uχ=da   c̓ədaq   =s=a   ƛ̓iṅa
               paint =3med=ost   woman   =**obl**=det   eulachon.grease
               'The woman is painting/painted with eulachon grease.'

       b.   *ǧəlsuχda c̓ədaqəχa ƛ̓iṅa.*
               ǧəls   =uχ=da   c̓ədaq   =χ=a   ƛ̓iṅa
               paint =3med=ost   woman   =**acc**=det   eulachon.grease
               'The woman is painting/painted [an image of] eulachon grease.' OR
             # 'The woman is painting/painted (on) eulachon grease.'

In stark contrast to the above pattern, substitution tests with alternating verbs do not result in coercion. In fact, consultants consistently judge accusative and oblique case as having something very close to the 'same' meaning, as in (7) (repeated from (3)).

(7) *nəp̓idida bəgʷanəm{sa siwayu / χa siwayu}.*
     nəp-xʔid　　=i=da　　　　　bəgʷanəm　　=s=a / =χ=a　　　　　siwayu
     throw-bec　=3dist=ost　　man　　　　　=**obl**=det / =**acc**=det　paddle
     'The man is throwing/threw a paddle.'
     Speaker's comment: "It's the same."

When consultants are asked which case they prefer with alternating verbs, they sometimes report preferring one case to the other while accepting the possibility of both. I will return to the question of what factors underlie such preferences in section 5.

2.3   Evidence from perspectivally opposed verb pairs

A third kind of evidence for case-marking being semantically determined comes from observing case marking patterns in perspectivally opposed verb pairs.

An interesting feature of verb pairs like *sell*/*buy* and *give*/*receive* is that each verb root in the pair encodes a different perspective on a single event (Gleitman 1990). In Kwak'wala, verb pairs which encode these kind of perspectival oppositions show a consistent, asymmetrical pattern of case marking which I take to be indicative of an existing semantic contrast. For example the verb pair *laχ-* 'sell' and *kəlxʷ-* 'buy' are shown in (8)-(9), where we see that *laχ-* is alternating, while *kəlxʷ-* is strict accusative. With *kəlxʷ-* oblique marked arguments are possible but are interpreted instrumentally: =*sa dala* means 'with money'. With *laχ-* 'sell' on the other hand, the direct object is interpreted as a theme, regardless of whether it is marked accusative or oblique.

(8) *laχəluχda bəgʷanəməχ{sa/χa} ham̓eʔ.*
     laχ-əl　　　　=uχ=da　　　　bəgʷanəm=əχ　=s=a　/ =χ=a　　　　　ham̓=eʔ
     sell-cont　　=3med=ost　　man=vis　　　=**obl**=det / =**acc**=det　eat=nmz
     'The man is selling/sold food.'

(9) *kəlxʷuχda bəgʷanəməχa ham̓eʔ.*
     kəlxʷ　=uχ=da　　　　bəgʷanəm=əχ　=χ=a　　　　　ham̓=eʔ
     buy　　=3med=ost　　man=vis　　　=**acc**=det　　　eat=nmz
     'The man is buying/bought food.'

A second, similar example of this pattern is shown in (10)-(11) with the verb pair *ċo-* 'give' and *loλ* 'get', where *ċo* is alternating and *loλ* is strict accusative.

(10) *ċowuχda ċədaqəχ{sa/χa} λatəmɬ.*
      ċo　　=uχ=da　　　　ċədaq=əχ　=s=a / =χ=a　　　　　λatəmɬ
      give　=3med=ost　　woman=vis　=**obl**=det / =**acc**=det　hat
      'The woman is giving/gave a hat.'

(11) *loλuχda bəgʷanəməχa λatəmɬ.*
      la-uλ　　　　=uχ=da　　　　bəgʷanəm=əχ　=χ=a　　　　　λatəmɬ
      go-obtain　　=3med=ost　　man=vis　　　=**acc**=det　　　hat
      'The man is getting/got a hat.'

The verbs *laχ-* 'sell' and *ćo-* 'give' are similar in meaning in that they name events in which an argument begins in the possession of the subject and undergoes a transition to being outside of the subject's possession. The verbs *kəlxʷ-* and *loλ*, on the other hand, name events in which an argument ends up in the possession of the subject. This difference in perspective on a change-of-possession event, encoded by *laχ-* and *ćo-* on the one hand and *kəlxʷ-* and *loλ* on the other, is significant in determining how the event participant which undergoes a change of possession gets case marked in Kwak'wala. This looks like a semantic pattern that a theory of case marking will have to explain.

In addition to verb pairs which encode alternate perspectives on the 'same' event, the same case marking asymmetry is observed in verb pairs that encode events which are opposites or reversals of each other, such as verbs of 'putting' versus verbs of 'removal', and verbs of 'attaching' versus verbs of 'detaching'. Specifically, verbs of putting and attaching resemble *laχ-* and *ćo-*, while verbs of removal and detaching typically mark their objects accusative.[††] This pattern is illustrated in (12)-(13) with the opposing verb pair *ʔaʔχud* 'attach, assemble', and *ǧʷiǧʷəłćənd* 'take apart, separate'.

(12)   *ʔaʔχuduχ Tedəχ{suχda/χʷa} ʔəmʔəmləmχ.*
         ʔaʔχud =uχ   Ted=əχ   =**s**=uχ=da / =χʷ=a   ʔəm~ʔəmləm=χ
         attach =3med Ted=vis =**obl**=3med=ost / =**acc.3med**=det   red~toy=vis
         'Ted is assembling/assembled the toy.'

(13)   *ǧʷiǧʷəłćəndaluχ Tedəχʷa ʔəmʔəmləmχ.*
         ǧʷiǧʷəłćənd-al   =uχ   Ted=əχ =χʷ=a   ʔəm~ʔəmləm=χ
         take.apart-cont   =3med Ted=vis =**acc.3med**=det   red~toy=vis
         'Ted is taking apart/took apart the toy.'

This asymmetrical pattern in case-marking in perspectively opposed verb pairs is pervasive and consistent across a large set of such pairs from the modern language. What this kind of data show is that the perspective taken on an event, encoded by a root, is a significant semantic predictor of case marking.

A theory of case marking in Kwak'wala will need to be able to explain the patterns in sections 2.1-2.3. I now turn to the task of articulating such a theory.

3. Analysis

3.1   The subevent hypothesis

I propose that we can account for the patterns observed above by recognizing that case-marking in Kwak'wala is semantically tied to subevental structure. I assume that eventive roots in Kwak'wala lexically encode an initial ('init') subevent, a non-initial or final ('fin') subevent, or both initial and non-initial subevents. These three possible event structures are represented in (14) below. Note that whether roots encode more finely

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[††] Some verbs of removal, while having a bias towards accusative in most contexts, in fact allow oblique case marking of the same argument in certain contexts. I briefly discuss contextual factors in determining case with alternating verbs in section 5, though a more in-depth analysis of these factors and how they play out with different verbs is postponed for future work.

grained event structures than this, for instance distinguishing process versus result subevents (Ramchand 2008), appears to be irrelevant from the perspective of case marking patterns in this language; I therefore leave aside the question of whether further decomposition is necessary to account for the full range of possible event structures.

(14)　*Possible event structures encoded by roots*
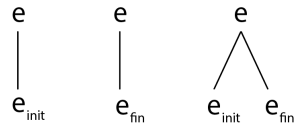
I will furthermore assume Neo-Davidsonian verb denotations of type $<e,<s,t>>$ which relate participants to events via event identification (Kratzer 1996). Example lexical entries for the verbs in (1)-(3) are given in (15) below. Roots' lexical entries contain entailments about whether their internal argument is a participant in an initial subevent (15-a), a non-initial or final subevent (15-b), or both subevents (15-c).

(15)　a.　$[\![\text{ʔəlk}^w\text{-}]\!] = \lambda x_e \lambda e_s. \text{bleeding}(x)(e) \ \& \ \exists e'[\text{init}(e', e)]$ and participant$(x)(e')$

　　　b.　$[\![\text{hiɬ-}]\!] = \lambda x_e \lambda e_s. \text{fixing}(x)(e)$ and $\exists e'[\text{fin}(e', e)]$ and participant$(x)(e')$

　　　c.　$[\![\text{nəp-}]\!] = \lambda x_e \lambda e_s. \text{throwing}(x)(e)$ and $\exists e', e''[\text{init}(e', e)$ and fin$(e'', e)] \ \&$
　　　　　　participant$(x)(e') \ \&$ participant$(x)(e'')$

Given these assumptions, my hypothesis is that the oblique (=*s*) case marker associates with internal[‡‡] arguments that participate in an initial sub-event, while the accusative (=*χ*) case-marker associates with internal arguments that participate in a non-initial subevent. An internal argument can appear with either case-marker just in case it denotes an event participant that participates in *both* an initial and non-initial subevent. In this way, a root's lexical semantics directly constrains whether it's internal argument can appear marked oblique, accusative, or with either case.

　　　A heuristic for thinking about the interpretation of case-marked arguments in English translation is to think about oblique marked arguments as participants which are 'done *with*', while accusative marked participants are 'done (*to*)'. If a particular event participant is both 'done *with*' and 'done (*to*)', it can appear with either case marker.

　　　Before making this proposal more explicit, let's look at how it fares intuitively with respect to some examples. First, take the strict accusative verbs in (16), *-(g)ila* 'make' and *hiɬ-* 'fix'. Both verbs take internal arguments which are standardly assumed to participate in non-initial subevents (e.g. Ramchand 2008), and both verbs mark this argument with accusative as expected. The object of a verb of creation like *–(g)ila*, the blanket in (16-a), comes into existence via the event of making, while the object of *hiɬ-*, a

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[‡‡] By specifying that it is *internal* event participants which are relevant for oblique case marking, I am excluding *external* arguments which also participate in initial subevents - namely, agents and inanimate actors capable of independent causation. In Kwak'wala, these participants are consistently realized as (zero-marked) nominative subjects, as opposed to instruments which cannot be subjects in Kwak'wala (Sardinha forthcoming). In a related vein, it is probably not a coincidence that agents in passive/nominalized phrases are also marked with =*s* (Sherer 2014), especially given that the oblique case marker and oblique agents in passives derive from the same historical source, prepositional **his* (Sardinha 2011). Further discussion of this interesting connection will have to wait for future work.

canoe in (16-b), is an undergoer of an event of fixing. Turning now to the strict oblique verbs in (17), we see that the oblique marked internal arguments of these verbs are conceivably co-participants – along with the unexpressed subject – in an initial subevent. Assuming that the verb *bəẃ-* encodes a transition from being in some location to no longer being in that location, the oblique-marked participant, *ẃaċi* 'dog' in (17-a), is present only in the initial stage of the encoded transition – that is, at the stage prior to the subject's leaving.[§§] The root *ʔəlkʷ-* 'bleed' conceivably only encodes an initial subevent, and *ʔəlkʷa* 'blood' is a co-participant, along with the unexpressed subject, in this subevent (17-b). Notice that neither of these oblique marked arguments are prototypical instruments, thereby supporting the point discussed in section 1, that the oblique case has a more general meaning than instrumentality. Finally, looking at the roots *ǧəls-* 'paint' and *ʔiʔkila* 'heal/bless', which both subcategorize for more than one strict case marked internal object, we can see that the thematic interpretation of case marked arguments is again consistent with the subevent hypothesis. Oblique marking associations with arguments co-present in initial subevents, including what is painted *with* (18-a), what is healed or blessed *with* (18-d), and what one is healed *from* (18-e). Accusative marking, on the other hand, associates with arguments which undergo or measure out an event: what is painted (on) (18-b), who is healed or blessed (18-f), and with what abstractly serves to measure out the event, an incremental theme (18-c).

(16)   *Strict accusative verbs*
    a.   ʔəχil- =χ   nəxʷəneʔ   'to make a blanket'
    b.   hiɬ- =χ   xʷakʷəna   'to fix a canoe'

(17)   *Strict oblique verbs*
    a.   bo- =s   ẃaċi   'to leave (behind) a dog'
    b.   ʔəlkʷ- =s   ʔəlkʷa   'to bleed blood'

(18)   *Verbs that are both strict accusative & strict oblique*
    a.   ǧəls- =s   ƛiṅa   'to paint with eulachon grease'
    b.   ǧəls- =χ   gukʷ   'to paint (on) a house'
    c.   ǧəls- =χ   ƛisəla   'to paint (an image of) a sun'

    d.   ʔiʔkil- =s   waɬdəm   'to heal/bless with words'
    e.   ʔiʔkil- =s   ċəx̣quləm   'to heal from an illness'
    f.   ʔiʔkil- =χ   ċədaq   'to heal/bless a woman'

Next consider alternating verbs, which on the hypothesis above entail that a single event participanṭ is both 'done *with*' and 'done (*to*)'. Intuitively this is correct for the theme of the verb *ƛaẏupa* 'trade' (19-a): a hat that is traded is both 'traded *with*' and 'traded (away)', thereby ending up in a new possession relationship. This is also true about the argument of a verb like *qəs-* 'coil, wind' (19-b), since rope that is coiled *with* also undergoes a change of configuration, becoming coiled. What someone spits (out) is both what one spits *with* and what gets spat (19-c), and what one hangs is both what one hangs *with* and also what ends up in a new spatial configuration as a result of being hung (19-

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[§§] See Pustejovsky (1991) for an example of an analysis of transitions like 'leave' along these lines.

d). In other words, all of these verbs entail that their internal argument is present in both initial and non-initial subevents – that is, both 'done *with*' and 'done (*to*)' in a sense that is specific to each root.

(19)　　*Alternating verbs*
　　　　a.　　ƛ̓ayu̓p̓a　　　　=s/=χ　　ƛatəmɫ　　　　'to trade (with) hats'
　　　　b.　　qəs-　　　　　=s/=χ　　dənəm　　　　'to coil (with) rope'
　　　　c.　　kʷis-　　　　　=s/=χ　　gʷəlik　　　　'to spit (out) pitch gum'
　　　　d.　　tikʷ-　　　　　=s/=χ　　dadac̓əwakʷ　　'to hang (up) a coat'

The data in (16)-(19) illustrate that the subevent hypothesis is intuitively plausible. Now let's consider how the subevent hypothesis explains the data presented in section 2.

In section 2.1, we saw that semantically defined verb classes correlate with the case-marking groups strict accusative, strict oblique, and alternating. This makes sense once we recognize that semantically defined verb classes consist of verbs with similar event structures. Verbs of creation, for instance, pattern as strict accusative because they all entail that their internal argument participates in a non-initial subevent – specifically, one where the argument comes into being as a result of the event. The subevent hypothesis is therefore consistent with – and even predicts – the finding that all members of a given semantically defined verb class have the same case marking behavior.

Next in section 2.2, we saw that substituting the 'wrong' case marker with the internal argument of a strict verb resulted in semantic coercion. The coerced interpretations that we saw arising there can now be made sense of on the subevent hypothesis. Consider, first, the finding that substituting oblique case for accusative with *t̓us*- 'cut' results in an interpretation of the internal object *ʔabəls* 'apple' as what is cut with (5). This follows from the fact that oblique case marking is associated with initial subevents: *ʔabəls* is coerced into having the reading of an instrument because instruments are participants in initial subevents. Now consider the finding that substituting accusative case for oblique with *ǧəls*- 'paint' results in a reading of the internal argument as either an incremental theme or a patient (6). This again follows from the subevent hypothesis, as incremental themes and patients are standardly assumed to associate with non-initial subevents, as does accusative case marking according to the subevent hypothesis.

The next pattern we explored in section 2.3 concerned how asymmetrical patterns of case marking arise in perspectively opposed verb pairs. Recall that verbs like *laχ*- 'sell' and *c̓o*- 'give' encode events in which an internal argument starts out in an initial subevent 'with' the subject, and ends up 'away from' the subject in a non-initial subevent. On the subevent hypothesis we would expect these verbs to alternate, and in fact they do. On the other hand, the perspectively-opposed verbs *kəlxʷ*- 'buy' and *loƛ* 'get' encode events in which an internal argument ends up in 'with' the subject in a non-initial subevent. The subevent hypothesis predicts these themes will be accusative-marked, and indeed they are. The same kind of story can be told for *ʔaʔχud* 'attach' (alternating) versus *ǧʷiǧʷəɫc̓ənd* 'take apart, separate' (strict accusative), albeit without any change-of-possession meaning. In sum, the subevent hypothesis predicts the case marking patterns in perspectively opposed verb pairs that we do in fact see, giving us additional evidence that the hypothesis is on the right track.

Finally, note that we can now make sense of Boas' observation that oblique case canonically marks instruments, but also marks many internal objects which we tend to think of as 'done *to*'. The relevant insight is that 'instruments' are essentially event participants which associate with solely an initial subevent. While oblique case is used to introduce instruments, it is also used to introduce internal arguments which are entailed to be members of *both* an initial and a non-initial subevent. Crucially, however, oblique is disallowed with arguments which are not entailed to participate in an initial subevent, and this is how it gets differentiated from the accusative.

I conclude that the subevent hypothesis is intuitively plausible and is able to capture the data introduced in section 2. I will now move to develop the subevent hypothesis into a more explicit proposal.

3.2   Formal analysis

Case markers are involved in relating individuals to events; I therefore assume case (K) heads to denote functions of type $<e,<<e,<s,t>>,<s,t>>>$ which associate with syntactic structures like the one in (20). The semantic generalizations motivated above, namely that oblique ($=s$) associates with participants in initial subevents and accusative ($=\chi$) associates with participants of non-initial subevents, I encode as presuppositions in the lexical entries of K heads. The lexical entries of these heads are given in (21).

(20)   *Structure of the VP, labelled with semantic types*

$$VP_{<s,t>}$$

$$V_{<e,<s,t>>} \quad KP_{<<e,<s,t>>,<s,t>>}$$

$$K_{<e,<<e,<s,t>>,<s,t>>>} \quad DP_e$$
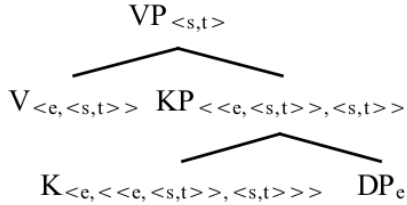
(21)   a. $[\![K_{=s}]\!] = \lambda x_e \lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \ \& \ participant(x)(e')].\lambda e_s.P(x)(e)$
       b. $[\![K_{=\chi}]\!] = \lambda x_e \lambda P_{<e,<s,t>>} : \exists e'[fin(e', e) \ \& \ participant(x)(e')].\lambda e_s.P(x)(e)$

In order to see how the analysis works, I will run through three illustrative derivations.[***]
       In (22), we can see that the analysis successfully derives the semantics of the verb phrase *hił- =χ kiλəm* 'fix ACC fishing.net' from (1). The derivation succeeds because the presupposition encoded within the lexical entry of the accusative case head matches the entailed content of the root.

(22) $([\![=\chi]\!]([\![ki\lambda\partial m-]\!]))([\![hi\dcancel{l}-]\!])$ 'fix **ACC** fishing.net'   ✓
       i. $[\![=\chi]\!]([\![ki\lambda\partial m-]\!])$
            $= (\lambda x_e \lambda P_{<e,<s,t>>}: \exists e'[fin(e', e) \ \& \ participant(x)(e')].\lambda e_s.P(x)(e))([\![ki\lambda\partial m]\!])$

[***] I ignore the semantics of determiners in these derivations, as their semantic contribution is not relevant to the task of showing how the VP is composed.

$= \lambda P_{<e,<s,t>>} : \exists e'[fin(e', e) \text{ \& } participant(ki\lambda\vartheta m)(e')].\lambda e_s.P(ki\lambda\vartheta m)(e))$

ii. $[\![=\chi \, ki\lambda\vartheta m]\!]([\![hi\dot{l}\text{-}]\!])$

$= (\lambda P_{<e,<s,t>>} : \exists e'[fin(e', e) \text{ \& } participant(ki\lambda\vartheta m)(e')].\lambda e_s.P(ki\lambda\vartheta m)(e)))$
$(\lambda x_e \lambda e_s.fixing(x)(e) \text{ and } \exists e'[final(e', e)] \text{ and } participant(x)(e'))$
$= \lambda e_s.((\lambda x_e \lambda e_s.fixing(x)(e) \text{ and } \exists e'[final(e', e)] \text{ and }$
$participant(x)(e')))(ki\lambda\vartheta m)(e))$
$= \lambda e_s.fixing(ki\lambda\vartheta m)(e) \text{ and } \exists e'[final(e', e)] \text{ and } participant(ki\lambda\vartheta m)(e')$

Now compare this derivation with the one in (23), where the oblique case has been substituted for accusative case in an otherwise identical VP. Here the case marker presupposes the existence of an internal event participant which participates in an initial subevent, yet the root *hił-* does not entail the existence of such an event participant. The result is coercion – the internal argument which is present in the derivation gets interpreted as an instrument, thereby matching the presupposition encoded by the case marker. In most contexts this derivation would also be judged ungrammatical, as the internal argument of *hił-* is generally obligatory.

(23) $([\![=s]\!]([\![ki\lambda\vartheta m]\!]))([\![hi\dot{l}\text{-}]\!])$ 'fix **OBL** fishing.net' # (also *)

i. $[\![=s]\!]([\![ki\lambda\vartheta m\text{-}]\!])$

$= (\lambda x_e \lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \text{ \& } participant(x)(e')].\lambda e_s.P(x)(e))$
$([\![ki\lambda\vartheta m]\!])$
$= \lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \text{ \& } participant(ki\lambda\vartheta m)(e')].\lambda e_s.P(ki\lambda\vartheta m)(e))$

ii. $[\![=s \, ki\lambda\vartheta m]\!]([\![hi\dot{l}\text{-}]\!])$

$= (\lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \text{ \& } participant(ki\lambda\vartheta m)(e')].\lambda e_s.P(ki\lambda\vartheta m)(e)))$
$(\lambda x_e \lambda e_s.fixing(x)(e) \text{ and } \exists e'[final(e', e)] \text{ and } participant(x)(e'))$ ✘

Finally, (24) shows a derivation of a VP with the alternating verb *nəp-* 'throw' and an oblique marked object; a derivation involving accusative marking would proceed along similar lines and would also succeed. Note that a few steps of simplification in this derivation are left out, as indicated by ellipses '…'. This derivation succeeds because the presupposition encoded in the lexical entry of the case head is consistent with the lexical semantics of *nəp-*. Note that the derivation succeeds despite the fact that the root *in addition* entails that its internal argument is an event participant in a non-initial subevent – an element of meaning not reflected in the semantic contribution of the case head.

(24) $([\![=s]\!]([\![siwayu]\!]))([\![nəp\text{-}]\!])$ 'throw **OBL** paddle'

i. $[\![=s]\!]([\![siwayu]\!])$

$= (\lambda x_e \lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \text{ \& } participant(x)(e')].\lambda e_s.P(x)(e))$
$([\![siwayu\text{-}]\!])$
$= \lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \text{ \& } participant(siwayu)(e')].\lambda e_s.P(siwayu)(e)$

ii. $[\![=s \, siwayu]\!]([\![nəp\text{-}]\!])$

$= (\lambda P_{<e,<s,t>>} : \exists e'[init(e', e) \text{ \& } participant(siwayu)(e')].\lambda e_s.P(siwayu)(e))$
$(\lambda x_e \lambda e_s.throwing(x)(e) \text{ and } \exists e', e''[init(e', e) \text{ and } final \, (e'', e)] \text{ \& }$
$participant(x)(e') \text{ \& } participant(x)(e''))$

$= \lambda e_s.((\lambda x_e \lambda e_s.throwing(x)(e)$ and $\exists e', e''[init(e', e)$ and final $(e'', e)]$ &
participant$(x)(e')$ & participant$(x)(e'')))(siwayu)(e))$

…

$= \lambda e_s.throwing(siwayu)(e)$ and $\exists e', e''[init(e', e)$ and
final $(e'', e)]$ & participant$(siwayu)(e')$ & participant$(siwayu)(e''))$

In summary, I've attempted to show in this section that an analysis framed in terms of subevental structure is both intuitively plausible on the basis of thematic properties in a range of examples, and is consistent with the data in section 2. Two crucial ingredients were also added to the analysis provided above. The first is that whether or not an internal argument participates in an initial subevent, a non-initial subevent, or both subevents is encoded as an entailment in the lexical entry of roots; and the second is that case heads encode as a presupposition whether the DP they associate with is an event participant in an initial or a non-initial subevent. Together, these pieces add up to tell a coherent story about how case marking patterns relate to verbs' lexical semantics.

4.   Alternative analyses

Having developed a theory of case marking for Kwak'wala, it is worth briefly considering a few alternative hypotheses regarding what the semantic factor(s) determining oblique and accusative case marking could be. Note that since there are only two case markers in this language, any semantic factor involved in differentiating the two cases will have to be fairly abstract. In addition to the hypothesis I've offered above based on subevental structure, a few alternative proposals are also conceivable.

A first alternative hypothesis worth considering is that oblique versus accusative marking is driven by aspectual factors such as telicity. That is, Kwak'wala could resemble a language like Icelandic which encodes telic events with accusative case on the object, and atelic events with partitive case (Kiparsky 1998). However, it turns out that this kind of analysis cannot explain case marking in Kwak'wala. Firstly, there is no case-correlated difference in telicity in sentences like (3) with alternating verbs: sentences with either case can be used to describe culminated as well as in-progress events, as indicated in the translations provided. Secondly, Kwak'wala is a language with non-culminating accomplishments (Greene 2013), so that even roots like *hił-* 'fix' and *-(g)ila* 'make' do not entail culmination (though culmination implicatures naturally arise), so accusative marking has nothing to do with telicity. Moreover, we have already seen that substituting oblique case for accusative with strict verbs leads to semantic coercion, resulting in an instrumental reading of an argument (5). Were telicity the relevant factor in determining case marking, we would expect a reading of atelicity to arise instead. In short, telicity does not determine case marking in Kwak'wala.

A second potential semantic factor which could conceivably underlie the difference between oblique and accusative case marking is whether or not an argument undergoes a scalar versus a non-scalar change (Rappaport-Hovav & Levin 2010), of which incremental themehood (Dowty 1991) is a particular case. While it is true that incremental themes are marked accusative in Kwak'wala, there are many accusative-marked arguments which do not undergo scalar change in any obvious sense. Take most alternating verbs in Table 4, for instance. The fact that incremental themes are marked

accusative is, moreover, easily explained on the subevent hypothesis, since arguments which undergo scalar changes are typically assumed to be participants in a non-initial/final subevent. It remains to be seen how exactly scale structure manifests in the grammar of Kwak'wala, but in any case, it does not seem to be at the level of generality necessary to explain the case marking patterns explored here.

I conclude that the subevent hypothesis is still the most viable hypothesis to account for the data in Kwak'wala when evaluated relative to alternative analyses based on (a)telicity and the contrast between scalar versus non-scalar change.

5.   Conclusions and remaining questions

In this paper I've argued that internal object case marking in Kwak'wala is semantically transparent, and that the semantic factor which determines case marking patterns in this language is subevental structure. Specifically, I've proposed that the oblique case ($=s$) is associated with internal arguments that participant in initial subevents, while accusative case ($=\chi$) is associated with internal arguments that participate in non-initial subevents. In addition to explaining why many verbs obligatorily mark their internal argument as either oblique ('strict oblique') or accusative ('strict accusative'), this proposal is able to account for the fact that a large number of verbs allow their internal argument to appear in either case ('alternating'). The proposal was shown to be intuitively plausible on the basis of thematic properties of arguments, and to also account for three types of empirical data: correlations between semantically-based verb classes and case marking patterns, semantic coercion effects in case substitution tests, and asymmetrical case marking patterns in perspectivally opposed verb pairs.

One implication of the analysis I've presented here is that it forms the basis for a more general theory about how semantic factors can give rise to object case alternations. Abstracting away from the particularities of Kwak'wala, a general hypothesis about how object alternations could be licensed is summarized in (25).

(25)   *Object alternation licensing hypothesis:*
        Given an eventive root R which subcategorizes for an internal argument a, and two distinct case markers/prepositions k_1 and k_2 which each have an independent semantic value, a may appear as the complement of either k_1 or k_2 when the following conditions hold: i) R has multiple entailments of a; and ii) the entailments that a inherits from R are consistent with the lexical semantics of both k_1 and k_2.

Refinements of (25) are no doubt necessary, but the general idea it represents should be clear. It is important to note that this hypothesis relies on a number of specific assumptions about the structure of lexical entries which are not universally accepted. For instance, I have assumed that the lexical entry of eventive roots makes explicit reference to the presence of subevental structure, but crucially does not make reference to thematic roles. The assumption that thematic roles are not semantic primitives in lexical representation is justified here by the observation that thematic role differences, on their own, cannot account for the difference between oblique and accusative case marking in Kwak'wala. The existence of alternating verbs, in particular, precludes a thematic role

analysis. This thinking is also in line with a growing consensus of researchers who are moving to either modify or reject traditional thematic role approaches (see Levin and Rappaport-Hovav 2005 for a recent overview). The role of event structure in structuring lexical representations is also increasingly recognized in the field, and movements to allow the 'same' event participant to instantiate multiple event roles is gaining currency (Ramchand 2008). Nevertheless, since some case markers and prepositions lack independent semantic content altogether (e.g. English *of*, and purely structural cases), the story in (25) cannot constitute a general theory to explain *all* object alternations. It remains to be discovered what exactly the scope of (25) is, and whether a theory along the lines of what is set out in (25) can account for existing patterns in object alternations in languages other than Kwak'wala.

A second implication of the analysis presented above is that if it is on the right track, it forces us to reconsider where to locate 'complexity' within the grammar. For instance, one modern approach to lexical semantics posits a constraint on lexical entries whereby roots may encode either manner or result entailments, but not both (Rappaport-Hovav & Levin 2010; see Beavers, John & Koontz-Garboden 2012 for a response). If the story I'm telling here is on track, however, then we are forced to admit that lexical entries are able to include a higher level of complexity than this, since lexical entries must be sufficiently complex so as to allow a single event participant to be a member of multiple subevents. When we relax constraints in one area of the grammar, it is probably the case that other constraints will appear elsewhere. In this vein, notice that in the data we have seen, Kwak'wala does not realize multiple case markers on a single DP – event participants are consistently mapped onto one and only one case phrase (KP). Thus the internal argument of a verb like *nəp-* 'throw' (3) ends up oblique marked or accusative marked, but not marked by both cases at the same time. This grammatical constraint ultimately gives rise to the object alternation we see, by forcing an event participant with multiple semantic entailments to realize a single grammatical role. In general, then, the analysis above provides an answer to the question of where to locate complexity in the grammar: allow complexity in the lexicon, but keep the grammar constrained.

A crucial remaining question for the analysis to handle concerns alternating verbs, and what determines the choice between oblique and accusative case marking in any given utterance. Thus while the subevent hypothesis can explain why certain verbs are capable of undergoing a case alternation, it is not able to predict when one or the other case marker is used *in a particular context* with alternating verbs. Yet consultants' judgments suggest that the choice is not arbitrary: thus while consultants consistently report that sentences like (3) sound 'the same' with either case marker, they do sometimes prefer one case to the other in particular contexts. Interestingly however, the factors underlying which case marker gets chosen cannot actually be semantic factors. We know this because alternating sentences do not differ in truth conditional content – that is, there appear to be no contexts in which sentences like (3) are true with one case but not the other. We also know this because on the analysis given, case markers do not alter the asserted content of a sentence, only its presuppositional content. Yet if the explanation for speaker preferences with alternating verbs is not semantic in nature, what kind of explanation is it?

There turns out to be an empirical pattern that is relevant to answering this question, which is subtle but robust and arises when we look at which case markers get

volunteered 'first' in particular contexts. Methodologically, I will often ask a speaker to translate an English sentence into Kwak'wala in a given context and then afterwards I'll substitute the other case marker and ask the speaker whether the sentence is acceptable and/or noticeably different in any way. Combined translation-judgment data of this sort reveals that with alternating verbs, oblique case is volunteered first in contexts where an initial subevent is being highlighted in some way, while accusative case is volunteered first when a non-initial subevent, such as a result state, is what is being highlighted. Accepting that the notion of 'highlighting' is vague at this point, the sentences in (26)-(27) illustrate the kind of pattern I am describing. In a context where a speaker is watching an event of *putting under* that has not culminated, an oblique marked object is volunteered first, though accusative is also judged as acceptable (26). In a context where a speaker is describing an event of *putting under* which has already gone to completion, accusative marking is volunteered first, although oblique is judged as acceptable as well (27). While this pattern is not produced all of the time, it is nevertheless very common – common enough, I would contend, for a child learning the language to pick up on it.

(26)   Context: The speaker is watching KS putting a hat under a nearby table.
        ʔəχʔabudən λasa λatəmɬ laχʷa haṁadzuχʷ.
        ʔəχ-abu-d   =ən   λa   =**s**=a   λatəmɬ la   =χʷ=a
        ∅-under-act =1sg   link =**obl**=det   hat   prep =acc.3med=det
               haṁadzu=χ
               table=vis
        'I am putting the hat under the table.' (=**s volunteered; =χ judged okay**)[†††]

(27)   Context: The speaker is describing something just done in an adjacent room.
        ʔəχʔabudən λaχa λatəmɬ laχa haṁadzu.
        ʔəχ-abu-d   =ən   λa   =χ=a   λatəmɬ la   =χ=a   haṁadzu=χ
        ∅-under-act =1sg   link =acc=det   hat   prep =**acc**=det table=vis
        'I put the hat under the table.'
        (=**χ volunteered; =s judged okay**)

Thus I propose that case-marking with alternating verbs serves to somehow 'highlight' one subevent relative to the other. Moreover, I propose that this effect arises pragmatically: in choosing to encode the internal argument of an alternating verb with one case marker – as one must do, given that there is a grammatical constraint against realizing multiple case markers – the speaker excludes the other case marker, thereby signaling to a listener that the choice was made for some reason. Detailed study of what kinds of pragmatic meanings gets signaled through case choice with alternating verbs awaits further work. What is encouraging about the prospects of developing a pragmatic theory along these lines is that it has the potential to provide precise, theoretical underpinnings to account for a vast amount of subtle, but nonetheless robust, speaker preference data in this language.

        There are many questions remaining to be answered with respect to the proposal above, many of which concern how the analysis fares in explaining case marking patterns

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[†††] Note that the sentence in (26) could also be uttered in a past tense context, and the sentence in (27) could also be uttered in a present tense context, though I have not indicated this in the translations.

with a wider set of roots in the language. Especially given that the analysis refers explicitly to subevents in roots' lexical semantics, a question arises as to how case marking behaves with statives, which are standardly assumed to lack internal structure. Moving forward, it will also be interesting to explore how the analysis fares with psych verbs. In general, the lexical semantics of psych verbs is more opaque to intuition than that of (most) non psych verbs, and this is especially true for analysts such as myself, working on a language which I do not speak natively. The psych domain resembles the non psych domain in that it contains semantically coherent groupings of strict accusative, strict oblique, and alternating verbs. It will be interesting to see whether insights gained about the relationship between case marking and event structure in the non psych domain carry over into the psych domain in a transparent way.

Ultimately, one of the end goals of this work is to understand how object marking works in this language at a deep enough level to make accurate predictions about which case marker can and should be used in any particular utterance. In making the system understandable in this way, it can become something that can be taught to Kwak'wala learners. Eventually, we may also be able to take old roots that are no longer in use and use knowledge of the syntax/semantics interface to make reasonable guesses about how to build sentences with these roots again. In this way, deep theoretical knowledge about how meaningful utterances are built in Kwak'wala can be used to keep breathing life into the language.

Appendix: Glossing conventions

Gloss	Notes
=1sg	first-person singular pronoun & first-person singular possessor
=3med	third-person, medial distance from speaker
=3dist	third-person, distal or absent relative to speaker
=acc	accusative case
=acc.3med	accusative case/third-person, medial distance from speaker (portmanteau)
-act	activizing suffix (Boas 1947: 237, 365)
-bec	momentaneous aspect (Greene 2013)
-cont	continuative or pluractional aspect (Greene 2013)
=det	determiner with existential meaning (Black 2011)
-fv	final vowel, default aspect (Greene 2013)
link	linker, used with first-person subjects
=nmz	nominalizer
=obl	oblique case
=ost	ostensive marker (Black 2011)
prep	preposition
red~	reduplicant, prefixes to base
=vis	visible

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