

Case and Event Structure

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Abstract

I argue in this paper for a novel analysis of case in Icelandic, with implications for case theory in general. I argue that structural case is the manifestation on the noun phrase of features which are semantically interpretable only on verbal projections; thus, Icelandic case does not encode features of noun phrase interpretation, but it is not uninterpretable either; case is properly seen as reflecting (interpretable) tense and aspect features. Accusative case in Icelandic is available when the two subevents introduced in a transitive verb phrase are identified with each other, and dative case is available when the two parts are distinct (thus Icelandic case manifests aktionsart or inner aspect, in partial contrast to Finnish). This analysis bears directly on the theory of feature checking in the Minimalist Program; specifically, it paves the way for a restrictive theory of feature checking in which no features are strictly uninterpretable: all formal features come in interpretable-uninterpretable pairs, and feature checking is the matching of such pairs, driven by legibility conditions at Spell-Out.*

1. Case and meaning

Traditional grammars abound with characterizations of the semantic meanings of various cases; the very name of the dative means (etymologically) the one ‘given.’ In the sentence in (1), there is a nominative agent (‘the birds’), an accusative patient (‘the helicopter’), an accusative path (‘all the way’) and a dative location (‘the airport’).

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- (1) Fuglarnir hafa elt þyrluna alla leið af flugvellingum.
the.birds.NOM have followed the.helicopter.ACC all way.ACC of the.airport.DAT
 ‘The birds have followed the helicopter all the way from the airport’

However, it is well known that none of these associations of thematic role with case is very stable; there are nominative patients and dative agents, as in (2).

- (2) Þyrlan hefur verið elt af fuglunum.
the.helicopter.NOM has been followed of the.birds.DAT
 ‘The helicopter has been followed by the birds’

Even adverbial cases may be subject to structural factors; consider the durational adverbial in the Finnish sentence in (3a), which appears in the accusative case (the object is partitive); in the passive sentence in (3b), accusative is no longer available and the adverbial is necessarily nominative (see Mitchell (1991), Pereltsvaig (2000)).

- (3) a. Maria luki kirjaa koko illan.
Maria.NOM read book.PART whole evening.ACC
 ‘Maria read the book all evening’
 b. Kirjaa luettiin koko ilta.
book.PART read.PASS whole evening.NOM
 ‘The book was read all evening’

Of course, certain morphological cases can be associated closely with semantic representations (e.g. Finnish abessive, meaning ‘without’: *puhtai-tta käsi-ttä*, clean-ABE hands-ABE ‘without clean hands’; cf. Nikanne (1993)). Nevertheless, common cases such as nominative and accusative generally defy any association with semantic meaning, and in generative grammar, they are ordinarily taken to be the manifestation of a purely syntactic licensing requirement on noun phrases (Rouveret and Vergnaud (1980), Chomsky (1980)).

This, however, leads to a peculiar state of affairs, in that the other formal features postulated to account for grammatical processes generally have some semantic content. The system of feature checking developed by Chomsky (Chomsky (1998) *inter alia*) postulates, in core cases, pairs of features in which one member of a pair is semantically interpretable, the other uninterpretable. Chomsky proposes that checking is necessary to eliminate uninterpretable features before the derivation is evaluated at the interfaces (PF and LF); thus, legibility conditions at the interfaces drive feature checking. Feature checking occurs when an uninterpretable feature is matched with an interpretable counterpart within a limited search domain.

For example, the number feature on the subject noun phrase in (1) has a semantic value, indicating the plural nature of that noun phrase; hence, it is interpretable. The

number feature on the finite verb (*hafa* ‘have.PL’), as manifested in agreement morphology, is uninterpretable, because there is no sense in which plurality or singularity of the agreement morphology bears on the semantic value of the verb, independently of the semantic value of the subject. Therefore, number on the verb is uninterpretable. When the uninterpretable and interpretable number features match, the uninterpretable one is formally deleted (though its morphological manifestation remains; compare *hefur* ‘have.SG’ in (2)).

The picture is complicated by the putative existence of purely uninterpretable features. Chomsky (1999) suggests that structural Case is the paradigmatic uninterpretable feature, as it does not contribute to the interpretation of the noun phrase. However, Pesetsky and Torrego (2000) argue that nominative Case is the uninterpretable counterpart of interpretable verbal tense; hence nominative Case is only uninterpretable on the noun phrase, the way nominal number features are uninterpretable on the finite verb. Sigurðsson (2000) points out cases in which nominative is sometimes available at some remove from the tense head of a clause; however, I will take there to be something essentially correct in the Pesetsky and Torrego account. In the sections to follow, I argue on the basis of the distribution of the Icelandic dative that non-nominative structural Case is the morphological manifestation of uninterpretable aspect or aktionsart. For alternations such as those in (1) vs. (2) and (3a) vs. (3b), what this means is that the thematic role for the element in question may remain the same, but the different case reflects the different aspectual makeup of the phrase in which that element is licensed.

Krifka (1992) and Kiparsky (1998) have shown that the distribution of partitive case in Finnish interacts crucially with aspectual interpretation. There, many verbs allow an alternation between partitive and accusative. Ramchand (1997) (see also Ramchand (2001)) has also shown a connection between aspect and object case in Bengali and in Scottish Gaelic, where object case and aspectual morphology covary.

In Icelandic, there are some instances where one and the same verb appears variably with dative or some other case; Sigurðsson (1989) gives the nominative-dative examples in (4a), and Barðdal points out that verbs like ‘dry’ and ‘comb,’ which ordinarily take accusative, can (optionally) take dative objects when the object is human or a familiar animal such as a cat, as in the examples here ((4b-e) from Barðdal (1993), (4f) from Maling (2001)).

- (4) a. Hlýnaði ofninn ekki flótt? Hlýnaði þér ekki fljótt?
warmed the.oven.NOM not soon warmed you.DAT not soon
 ‘Didn’t the oven get warmer soon?’ ‘Didn’t you get warmer soon?’
- b. Kristín greiddi hárið. Kristín greiddi Jóni.
Kristin combed the.hair.ACC Kristin combed Jon.DAT

- c. Kristín þvoði handklæðið. Kristín þvoði barninu.
Kristin washed the.towel.ACC Kristin washed the.child.DAT
- d. Kristín þurrkaði handklæðið. Kristín þurrkaði barninu.
Kristin dried the.towel.ACC Kristin dried the.child.DAT
- e. Kristín strauk handleggin á sér. Kristín strauk kettinum.
Kristin stroked the.arm.ACC on RFX Kristin stroked the.cat.DAT
- f. Kötturinn klóraði mig. Ég klóraði kettinum.
the.cat scratched me.ACC I scratched the.cat.DAT

Sigurðsson and Barðdal suggest that animate arguments in such cases are goals or benefactives, rather than themes, and the dative is used for goals or benefactives more generally in Icelandic; a variant on this intuition is to characterize these objects as experiencers, as Maling does.

Nevertheless, the usual situation in Icelandic (as with German) is that monotransitive verbs govern either only dative or only accusative case (there are genitive-taking verbs, but they are rather few), and this is usually taken to be listed as part of the dictionary entry.

- (5) a. Ég keyri mótórhjól/*mótórhjól.
I drive motorcycle.ACC/motorcycle.DAT
 ‘I drive a motorcycle’
- b. Ég ek mótórhjól/*mótórhjól.
I drive motorcycle.DAT/motorcycle.ACC
 ‘I drive a motorcycle’

Thus the Icelandic dative is more closely tied to lexical semantics than the Finnish partitive, a difference which can be thought of as being determined by the difference between inner and outer aspect. However, since there is little evidence for a structural difference between dative and accusative objects (see Maling (to appear)), I assume that case features are checked not in Spec-head configurations, but under Agree (Chomsky (1999)), perhaps limited only by the extent of the strong phase (see Svenonius (2001)).

2. Ballistic motion

In Icelandic, objects which undergo certain types of motion appear in the dative case. Barðdal (1999) has demonstrated that this generalization is productive, listing dozens of instances of dative case with neologisms and novel uses of verbs to describe objects being propelled through space after initial impartation of kinetic force (sportscasters are particularly helpful in demonstrating this phenomenon).

- (6) a. negla ‘kick or smash’ (< *negla* ‘nail’)
 d. þrykkja ‘kick or smash’ (< *þrykkja* ‘print’?)
 b. þrusa ‘kick or smash’ (< English *thrust*?)
 c. dúndra ‘kick or smash’ (< ? note ‘thunder’ is *þruma* or *druna*)

The data from neologisms, like the data from Dative Sickness (Svavarsdóttir (1982), Halldórsson (1982)) is extremely important in that it establishes that the patterns of dative in Icelandic are not simply remnants of some moribund historical system. Surely, the historical patterns provide information about the origins of the modern pattern, and there may remain verbs with idiosyncratic lexical specifications which are simply learned, like idiomatic expressions, by each new generation. But if the patterns revealed by close examination of the extensive and detailed lists compiled by Joan Maling (Maling (1998) lists about 800 verbs which are attested with dative objects) and Jóhannes Gísli Jónsson (Jónsson (2000) is a list of over 300 constructions with non-nominative subjects) suggest a system, the neologisms and reclassifications documented by Jóhanna Barðdal, Ásta Svavarsdóttir, and others are definite proof that a system exists.

This can also be seen with verbs referring to the launching of projectiles. The target of the action may be accusative, but the projectile itself is dative ((7a-d) from Maling (2001)).

- (7) a. skjóta fuglinn ‘shoot the bird’ (acc)
 b. skjóta kúlunni ‘shoot the bullet’ (dat)
 c. skutla hvalinn ‘harpoon the whale’ (acc)
 d. skutla skutlinum ‘throw the harpoon’ (dat)
 e. stinga sig ‘stick oneself’ (acc)
 f. stinga hnífnum í tréð ‘stick the knife (dat) in the tree’

The last example is not strictly ballistic, as the knife need not leave the hand. The same is true of (8a-b) below (from Maling (2001)). Such examples are sometimes reminiscent of the Proto-Germanic instrumental dative (cf. (8c), also from Maling (2001)).

- (8) a. Hann sló köttinn.
he hit the.cat.ACC
 ‘He hit the cat’
 b. Hann sló kettinum í vegginn.
he hit the.cat.DAT in the.wall
 ‘He hit the cat against the wall’

- c. Þeir tóku henni opnum örmum.
they took her open arms.DAT
 ‘They greeted her with open arms’

Whatever the historical source of the construction, it is clear that modern Icelandic uses dative on objects which undergo (certain kinds of) motion. Note, however, that elements which undergo motion are ordinarily nominative with intransitive verbs, whether the motion is self-directed or not (cf. Zaenen and Maling (1984)) (the same subjects would be accusative in ECM contexts, cf. Thráinsson (1979)).

- (9) a. Skipið sökk.
the.ship.NOM sank
 b. Oddlaug stökk.
Oddlaug.NOM jumped

Thus, it seems that dative is only licensed in verb phrases which have two parts, an initiation of an event, and some result of that initiation; compare Burzio’s Generalization, which states that accusative case is only available from verbs which have an external argument. I will return in section 5 to the question of monovalent verbs with dative and accusative subjects; first I will continue to investigate the difference between dative and accusative with transitive verbs.

3. Other manners of motion

When an event involves assisted motion then the object is accusative, not dative.

- (10) a. draga ‘pull, drag, draw’
 b. flytja ‘move, transport, carry’
 c. færa ‘move’; ‘bring’

This includes some instances where the verb lexically specifies the direction of motion; each of the verbs in (11) takes an accusative object.

- (11) a. hækka ‘raise’
 b. lækka ‘lower’

However, verbs which specify manner of motion in the sense of Levin and Rappaport Hovav (1995) have a strong tendency to take dative objects, when transitive.

- (12) a. dreypa vatninu ‘sprinkle water’
 b. fleyta bátnum ‘float the boat’
 c. velta tunnu ‘roll a barrel’
 d. venda skipi ‘turn a ship around’

Similarly for verbs meaning ‘overturn,’ ‘wag,’ ‘dangle,’ ‘droop,’ ‘dive,’ ‘blow,’ ‘pour,’ ‘glide,’ ‘swing,’ ‘splash,’ and so on. Here, as in the examples given in the previous section, there is a sense in which the movement of the object may be initiated by some action on the part of the subject, but the subject’s influence need not persist throughout the event.

This characterization is less clearly apt when the object is reflexive, as in (13).

- (13) a. *snúa sér*
turn RFX.DAT
‘turn around’
- b. *demba sér*
pour RFX.DAT
‘dive’

It may be true that a turning or diving event conducted by a sentient subject involves continuous application of control over the event. However, this need not mean that it is conceived of that way. Barðdal (1999) documents a great number of neologisms in which verbs with various meanings have been coopted as verbs of manners of movement by the addition of a dative reflexive object. Just a few examples are given here; the last two are apparently based on English words (which are not ordinarily used with reflexives in English).

- (14) a. *blaka sér* flap RFX ‘get lost’
b. *dilla sér* wiggle RFX ‘get lost’
c. *dingla sér* dangle RFX ‘get lost’
d. *drulla sér* shit RFX ‘hurry’
e. *koma sér* come RFX ‘move’
f. *sippa sér* zip RFX ‘move’
g. *skvísa sér* squeeze RFX ‘squeeze by’

Examples of this type show that verbs of manner of motion take dative case productively, not simply as a matter of arbitrary lexical specification. I will assume that they are distinct from the accusative-taking verbs in (10-11) in that the sense of continuous action on the object is lacking from (13-14), even though there is no such difference in the real world events they describe. Notice that *snúa* can take an accusative reflexive, with a kind of affected object meaning.

- (15) *snúa sig*
turn RFX.ACC
‘twist one’s elbow/ankle’

I return to the link between accusative and affected objects in section 5.

The split-v hypothesis is often taken to encode Burzio's Generalization, if accusative case is assigned by v, the same head that is responsible for the agent theta role. With verbs of motion, accusative seems to signal that the object is affected or acted upon throughout the event, in a way that is absent from the dative objects. This indicates an integration of the activity performed by the agent or originator (the argument introduced by v) and whatever it is that happens to the patient or undergoer. In the dative examples, the dative argument is more insulated from v and the upper layer of the event, almost as if there were a null preposition assigning the dative case; however, dative objects in Icelandic show no signs of behaving like prepositional phrases, for example they undergo Object Shift while prepositional complements do not (cf. Jónsson (1996)).

- (16) a. Böðullinn bjargaði stelpunni ekki.
the.executioner rescued the.girl.DAT not
 b. * Böðullinn dansaði skipinu ekki á.
the.executioner danced the.ship not on

Also unlike prepositional complements, dative objects are promoted under passive (see Maling and Zaenen (1985)). Importantly, the promoted object remains dative under passivization.

- (17) a. Skipinu var sökkt af skipstjóranum.
the.ship.DAT was sunk by the.captain
 b. Honum var oft hjálpað af foreldrum sínum.
him.DAT was often helped by parents RFX.POSS

Another important indication that the syntax of accusative and dative complements is basically the same is that particle shift in the verb particle construction applies equally with objects of any case (generally, a verb controls the same case with or without a particle, cf. Thráinsson (1979), Svenonius (1994)).

- (18) a. láta aftur hurðina – láta hurðina aftur
put back the.door.ACC put the.door.ACC back
 'close the door'
 b. halla aftur hurðinni – halla hurðinni aftur
lean back the.door.DAT lean the.door.DAT back
 'close the door, leaving it just slightly ajar'

I have argued that these constructions involve small clauses in Icelandic (Svenonius (1996a), Svenonius (1996b)). If that is correct, then the analysis of dative certainly cannot make reference to direct objects or theta assignment in the old sense. In any case, the

similarity of the patterns here do not support any attempt to locate the dative-accusative contrast in a particular licensing position, as by a null preposition.

At this point it is possible to begin to formalize the characterization made in the previous section for the environment of the dative. Assume that all transitive verb phrases consist of at least two parts, v and a lower part (see e.g. Kratzer (1994), Harley (1995)). The head v bears an event variable, and introduces the external argument, and may carry information about the manner in which an activity is carried out (cf. Hale and Keyser (1993), Hale and Keyser (1999) and Krifka 1995). The complement of v may be a root (cf. Marantz (1997)) which introduces the internal argument and may specify information about what happens to the internal argument. If the initiator (the external argument) is continuously involved in the situation introduced by the root, then the v event and the root situation are cotemporaneous. This can be represented (mixing terminologies slightly) as $t(e_v) = t(s_r)$ (compare the event identification of Kratzer (1994), which is stronger; my reason for this weaker formulation will become apparent in section 4). This would seem to be consistent with the intuition that, for example, a dragging event involves continuous impartation of force. For a throwing event, on the other hand, only the initial part of e_v is cotemporaneous with s_r . Possibly, this happens when the root introduces its own event (cf. Harley (1999) for a relevant investigation).

For simplicity, assume that whether $t(e_v) = t(s_r)$ or not is determined by properties of v . Then v that binds its complement in such a way that $t(e_v) = t(s_r)$ is just the kind of v that licenses accusative case. Accusative case will not be available in unaccusatives, on the reasonable assumption that there are not two separate subevents with an unaccusative. Passives plausibly do contain both subevents (since they carry the implication of an external argument), but they do not assign accusative case. I take the absence of accusative case in Icelandic passives to indicate that passive v does not bind its complement in the same way as active v ; this may be connected to the ready availability of a stative reading for passives, but it is not immediately clear here that it follows from anything deep. Perhaps that is as it should be; the properties of passives vary a great deal cross-linguistically.

In the dative examples I have shown so far, there is an initiating event and so there must be an initiator v . However, I have suggested that it is not cotemporaneous with the event introduced by the root. Dative case is not available in true unaccusatives, as noted above, so it, like accusative, requires reference to the complex event structure made possible by the split- v analysis. Thus, I will provisionally assume that dative is available when an initiator v is chosen which binds only the initial time of the root (ultimately, I will suggest that properties of the root are crucial in determining whether the events are identified in the relevant way or not). Note that such binding will be unchanged in the passive, cf. (17). In fact, ditransitives suggest that a single root can have two v 's, so a dative passive presumably has two v 's as well (see Davis and Demirdache (2000) and

Travis (2000) on the inventories of *v* in Salish and Austronesian languages; cf. also Harley (1995)).

In Icelandic, there are some overt morphological candidates for *v*, such as the inchoative deadjectival suffix *-ka* (Sigurðsson calls it ‘progressive’) in *dýpka* ‘deepen,’ *mjókka* ‘narrow,’ or *minnka* ‘shrink’ (cf. also the verbs in (11)). All of these take accusative objects and belong to the same declension paradigm (*bakka* ‘back up’ takes dative, but seems to only accidentally end in *-ka*; it is not inchoative, not deadjectival, and doesn’t show umlaut).

If *v* determines the declension paradigm, then causatives which are productively formed from unaccusatives by the addition of a particular kind of *v* should belong to the same declension paradigm. The systematic correlation between weak verbs like those in (19) and strong ones like those in (20) is discussed in Sigurðsson (1989) (for the weak transitive verbs in (19), the infinitive, third person singular past, and past participle forms are given—the alternation *ð–t–d* is phonologically predictable; for the strong unaccusative verbs in (20), the infinitive is followed by the third person singular present, third person singular past, third person plural past, and the past participle).

- (19) a. *dreypta* (*dreypti*, *dreypt*) ‘sprinkle’
 b. *feykja* (*feykti*, *feykt*) ‘blow’
 c. *fleygja* (*fleygði*, *fleygt*) ‘throw (away)’
 d. *fleyta* (*fleyti*, *fleyt*) ‘float’
 e. *renna* (*renndi*, *rennt*) ‘pour, let flow’
 f. *sleppa* (*sleppti*, *sleppt*) ‘let go, release, drop’
 g. *stökkva* (*stökkti*, *stökkt*) ‘chase’
 h. *velta* (*velti*, *velt*) ‘roll’
- (20) a. *drjúpa* (*drýpur*; *draup*, *drupu*, *dropið*) ‘drip, fall in drops’
 b. *fjúka* (*fýkur*; *fauk*, *fuku*, *fokið*) ‘be blown away, blow away’
 c. *fljúga* (*flýgur*; *flaug*, *flugu*, *flogið*) ‘fly’
 d. *fljóta* (*flýtur*; *flaut*, *flutu*, *flotið*) ‘float’; ‘run, stream’
 e. *renna* (*rann*, *runnu*, *runnið*) ‘slide, slip’; ‘flow, stream, run’
 f. *sleppa* (*slapp*, *sluppu*, *sloppið*) ‘get away, escape’
 g. *stökkva* (*stekkur*; *stökk*, *stukku*, *stokkið*) ‘jump, leap, gallop’
 h. *velta* (*valt*, *ultu*, *oltið*) ‘roll’

It is striking that all of the verbs in (19) take dative complements. Sigurðsson (1989) also gives similar (transitive weak–unaccusative strong) pairs in which the transitive verb takes the accusative (*setja* ‘set,’ *reisa* ‘raise,’ *færa* ‘move,’ corresponding to *sitja* ‘sit,’

rísa ‘rise,’ *fara* ‘move’), but they do not specify manner of motion, but rather accompanied motion (cf. (10-11)). This suggests that there is a weak paradigm transitive *v* head which attaches to roots indicating motion and which, if a manner is specified for that motion, do not bind the event in the way necessary for accusative case.

There are strong verbs taking dative complements (e.g. *ljúka* ‘finish,’ *slíta* ‘wear down’), but not nearly as many as those taking accusative. In fact, strong accusative-taking verbs often seem to correspond to weak unaccusatives, in a reversal of the pattern shown above.

- (21) a. brjóta (brýtur; braut, brutu, brotið) ‘break, crack’
 b. kljúfa (klýfur; klauf, klufu, klofið) ‘split, cleave’
 c. rífa (reif, rifu, rifið) ‘tear, rip’; ‘tear down’
 d. slíta (sleit, slitu, slitið) ‘snap, break’
- (22) a. brotna (brotnaði, brotnað) ‘break, crack’
 b. klofna (klofnaði, klofnað) ‘split, crack’
 c. rifna (rifnaði, rifnað) ‘tear, rip open’
 d. slitna (slitnaði, slitnað) ‘snap, tear’

However, *-na* is denominal (apparently: cf. *brot* ‘fracture,’ *klof* ‘crotch,’ *rífa* ‘rip, tear, crack, gap, slit,’ *slit* ‘wear and tear’; but Sigurðsson (1989:242) notes that *-na* is also frequently deadjectival; (22) might be formed on the past participles of (21)), so the pattern here does not necessarily suggest that the unaccusatives are derived directly from the transitives (furthermore the strong paradigms are regular, so they could themselves be derived). Most class 3 verbs ending in *-ja* take accusative (e.g. *flytja* ‘move,’ *dylja* ‘hide,’ *dvelja* ‘delay’), but there are exceptions (*vefja* ‘wind’ enters a dat-acc alternation). Some of the exceptional dative-taking verbs might actually be seen as involving a distinct, instrumental dative (e.g. *aka* ‘drive,’ *fljúga* ‘fly (a plane),’). It is clear that the apparent correlations bear further investigation (see Sigurðsson 1989: 242 for references to previous work, especially on the *-st* suffix).

In the next section I look at one construction in detail, the spray-load alternation, to determine the syntactic structures involved.

4. The spray-load alternation

In Icelandic, the familiar spray-load alternation is productive with verbs with the appropriate semantics. When the direct object is the location or target of movement, it appears in the accusative case, as in (23a, c, e). When the direct object is the element or substance being moved, it appears in the dative case, as in (23b, d, f).

- (23) a. Við hlóðum vagninn með heyi.
we loaded the.wagon.ACC with hay.DAT
- b. Við hlóðum heyinu á vagninn.
we loaded the.hay.DAT on the.wagon.ACC
- c. Hann spreypjar bílinn með málningu.
he sprays the.car.ACC with paint.DAT
- d. Hann spreypjar málningu á bílinn.
he sprays paint.DAT on the.car.ACC
- e. Hann smyr brauðið með hnetusmjöri.
he smears the.bread.ACC with peanutbutter.DAT
- f. Hann smyr hnetusmjörinu á brauðið.
he smears the.peanutbutter.DAT on the.bread.ACC

It seems clear that this is part of the more general pattern already revealed. Given what I have said about the dative not being involved in the upper part of the event, this implies that the relationship between the verb and the accusative should be tighter and more intimate, in a way, than the relationship between the verb and the dative. This is not obvious syntactically; object shift may apply in either structure.

- (24) a. Við hlóðum ekki vagninn með heyi.
 b. Við hlóðum vagninn ekki með heyi.
we loaded the.wagon not the.wagon with hay
 ‘We didn’t load the wagon with hay’
- (25) a. Við hlóðum ekki heyinu á vagninn.
 b. Við hlóðum heyinu ekki á vagninn.
we loaded the.hay not the.hay on the.wagon
 ‘We didn’t load the hay onto the wagon’

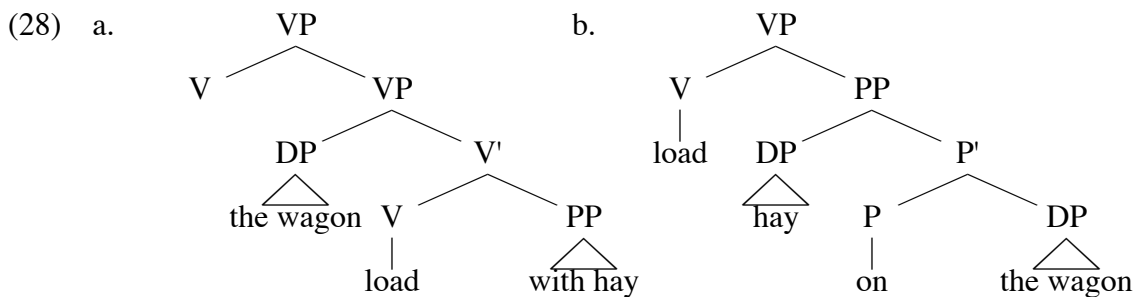
However, semantically, there is a difference. The accusative direct object is conceived of as an incremental theme, and the event is mapped onto the object in the sense formalized by Krifka (1992). In contrast, the dative object is not, and is treated more as if it were an indivisible unit undergoing movement. This is not a fact about the world; in the real world, it is just as possible for hay to be moved bit by bit into the wagon as it is for the wagon to be filled bit by bit with hay. But there is evidence that this is not the way the Icelandic language structures such events. Either, as in (24), the event is thought of as a gradual process of wagon filling, or else, as in (25), it is thought of as an atomic act of hay relocation. This becomes clear when we attempt to modify the two structures with a degree adverb.

- (26) a. Við hlóðum vagninn næstum því með heyi.
we loaded the.wagon.ACC nearly so with hay.DAT
 ‘We nearly loaded the wagon with hay’ (ambiguous)
- b. ? Við hlóðum heyinu næstum því á vagninn.
we loaded the.hay.DAT nearly so on the.wagon.ACC

(26a) is ambiguous. It can either mean that we nearly performed the activity that would have led to wagon-filling (the wide scope reading), or else it can mean that we performed some activity, and, as a result, the wagon nearly became filled (the narrow scope reading). (26b), in contrast, can only have the wide scope reading. (26b) is also somewhat degraded. A better sentence than (26b) is the one below, in which the object follows the adverbial.

- (27) Við hlóðum næstum því heyinu á vagninn.
we loaded nearly so the.hay.DAT on the.wagon.ACC
 ‘We nearly got around to loading the hay onto the wagon’

Here again only the wide scope reading is possible. The degree adverbial cannot modify the subportion of the event having to do with the changing of location of the hay. Consider the structures proposed by Hale and Keyser (Hale and Keyser (1993), Hale and Keyser (2000)) for spray-load constructions. They argue that the location-as-object variant involves a complex VP structure, as in (28a), providing specifiers for the agent and the location (the external argument is not shown here), while the locatum-as-object version has a small clause complement to a causative V (here the small clause is labeled PP). Thus, in (28a) the location is an argument of the verb, but in (28b) the locatum is properly an argument of P. Recall the intuition I floated above that the accusative is more directly involved in the higher verbal structure, while the dative is more removed from it.

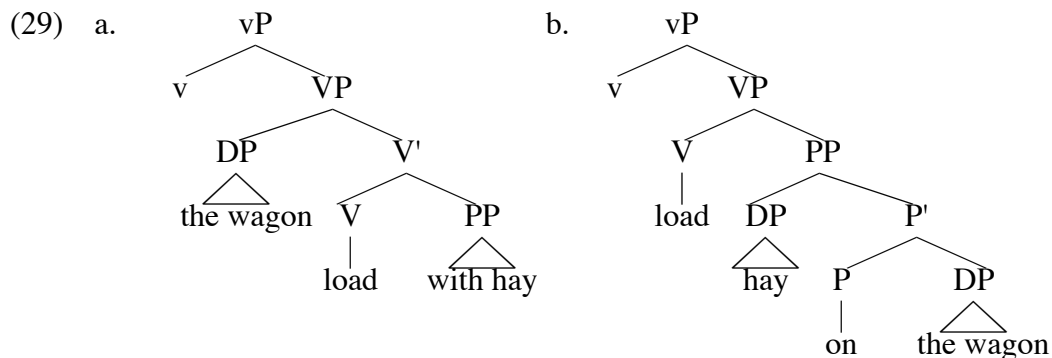


Assuming Icelandic to have structures like these, the tree on the left would be the accusative structure, and the higher V in each structure would be the one that introduces the external argument; that is, it is the head that I have been referring to as *v*. Alternatively, there is always a distinct *v*, in which case the tree on the right must have an additional layer. I will return to this possibility.

Assuming the trees in (28), the two readings for (26a) correspond to the two possible points of attachment for the adverbial, above and below the causative *v* at the top of the structure (optional object shift allows the object to appear to the left or right of both attachment sites, so that word order is unilluminating). If attachment is high, then the act of causation was ‘nearly’ performed. If attachment is low, then the loading event was ‘nearly’ complete.

In the dative structure to the right, there is only one V projection, and only one reading. One might expect a second reading in which the adverb attaches to the small clause [*hay onto the wagon*]. Possibly, the relevant difference between V and P is that V introduces an event, while P does not. If the adverbial must bind an event, then it will not have anything to bind in case it attaches to the non-verbal projection. This means that the required higher attachment of the adverbial is forced, and only the wide-scope reading is available. The only part which is unexplained is why (26b) is degraded, since object shift should allow the dative object to leave the VP in any event. I will assume that this has to do with the information structural properties of object shift and is not syntactically blocked.

The account just sketched relies on specific details of the structures in (28), independently motivated by Hale and Keyser. But recall the idea that every transitive verb actually consists of two parts (as would be suggested by the morphological evidence discussed above). This gives trees like those in (29).



Assume for the moment that the root \sqrt{load} , which I label V, can ambiguously be used as a way of affecting a location, in which case *v* will bind its event, and the tree in (29a) will result, or a way of making something move, in which case *v* will only bind the initial part of the event, and the tree will be as in (29b). Now, if the trees in (29) are more accurate, then it looks as if there should be an ambiguity in (29b), since there are two locations for the attachment of the adverbial. However, the attachment of the adverbial below the causative head would still be above the small clause [*hay on the wagon*], and so the scope would not be different in any relevant way. The wagon is more integrated into the verbal event in (29a) than in (29b), and will be subject to its modification. See section 5 on mapping to events.

A similar effect can be observed in Serbian (as pointed out to me by Tanja Milićev), with verbs like *pomóci* ‘help’ which optionally take dative or accusative (with accusative this verb tends to refer to financial assistance).

- (29) a. On ga je skoro pomogao.
he him.ACC is almost helped
 ‘He helped him, to a degree that was insufficient’
- b. On mu je skoro pomogao.
he him.DAT is almost helped
 ‘He almost helped him’ (help was never provided)

In English, the partial reading of the sentence *he helped him* is unavailable—hence the clumsy paraphrase in (29a)—as if ‘help’ took the dative in English. That English has something like a covert dative structure is also suggested by examples like those in (30).

- (30) a. This forge partly burns coal.
 b. This forge partly burns on coal.

(30a) is ambiguous, meaning either that the coal placed in the forge becomes partly burnt, or that the forge uses two types of fuel, one of which is coal. (30b) only has the latter meaning. In Icelandic, when the coal is the type of fuel that the forge runs on, then it appears in the dative case, as noted by Maling (2001).

- (31) a. *brenna kolum* burn coal.DAT ‘run on coal’
 b. *brenna kol* burn coal.ACC ‘consume coal by burning’ or ‘make charcoal’

Further evidence that the dative has to do with event structure comes from cognate object constructions. Maling (2001) points out that cognate objects tend to be dative.

- (32) a. Hún grét sárum gráti.
she cried bitter tears.DAT
- b. Hann svaf djúpum svefni.
he slept deep sleep.DAT
- c. Hún hlær alltaf svo innilegum hlátri.
she laughs always so inward laugh.DAT
- d. Hún lifir góðu lífi.
she lives good life.DAT
- e. Hún brosti til hans tindrandi brosi.
she smiled to him sparkling smile.DAT

She also notes a number of apparent exceptions.

- (33) a. syngja sönginn
 sing song.ACC
- b. þvo þvottinn
 wash wash.ACC
- c. þylja þuluna
 recite poem.ACC
- d. dreyma draum
 dream dream.ACC
- e. róa róður
 row row.ACC

It turns out that the exceptions are not actually cognate objects, in the formal sense; they are simply direct objects which happen to be cognate with the verbs they appear with (cf. the ‘hyponymic objects’ of Hale and Keyser (2001)). Thus, ‘sing,’ ‘wash,’ etc. are ordinary transitive verbs, while ‘cry’ and ‘sleep’ and so on are not.

This can be seen by the fact that the true cognate objects require adjectival modification, while the accusative arguments do not. It can be further demonstrated by using a modifier which makes explicit reference to the physical properties of the object, as in (34); you cannot have a half of a cognate object (except with poetic license), whereas it is quite natural to quantify over ordinary objects.

- (34) a. Hann dreymdi hálfan draum.
 he dreamt half dream.ACC
- b. Hann reri hálfan róður.
 he rowed half row.ACC
 ‘He made half of an intended rowing trip’

- (35) a. * Hann brosti hálfu brosi.
 he smiled half smile.DAT
- b. * Hann grét hálfum gráti.
 he cried half cry.DAT

Thus, ‘dream’ in Icelandic is an activity, like reading or writing, which involves the agent and the patient intimately over the course of the event; the verb consists of a *v* of initiation which is contemporaneous with a *V* of the unfolding of a dream. The Icelandic equivalent of ‘smile,’ on the other hand, is different; it presumably also involves an act of initiation, but there is no independent event of smiling, only the smile itself.

What appears to be exactly the same contrast is demonstrated for Russian by Pereltsvaig (1999), where the true cognate objects appear in the instrumental case, while incidentally cognate objects are accusative, just like noncognate objects.

Assuming Hale and Keyser's analysis of intransitive verbs as covertly transitive, a verb like *smile* underlyingly involves an N complement to v. (Following Marantz (1997) or Borer (2000), the complement might not have any syntactic category before combining with v.) According to Hale and Keyser (2001), the cognate object construction arises when that underlying complement to v contains modification (e.g. an adjective) or other material that requires the support of functional material; the functional material, in turn, makes the null N impossible (alternatively, it prevents incorporation, or forces the category N). The cognate object solution is to allow both the the higher and the lower head to contain lexical material; but plausibly N, like P, does not introduce an event, so it is not possible for v to bind it. Hence accusative is not licensed.

5. Measuring out

Tenny (1994) proposes that if a verb carries the entailment that its direct object undergoes an internal change, then that direct object measures out the event introduced by the verb; furthermore, she argues that other arguments (subjects, indirect objects, and prepositional arguments) cannot measure out the event. The clearest examples of this are verbs with incremental themes, such as verbs of creation and consumption, and the formal expression of the measure of the event is sharpest in Krifka's (1992) mappings of objects to events and events to objects.

In Icelandic, verbs which entail that their direct objects undergo internal change almost always take the accusative case. This is true of incremental theme verbs like 'eat,' 'drink,' 'build,' 'make,' 'paint,' and so on, typical affected object verbs like 'shoot' (cf. (7)), verbs of breaking, cutting, and so on (cf. (21)), and verbs of change of state like 'enlarge,' 'reduce,' 'bend,' 'twist,' 'melt,' 'burn,' 'dry,' 'heat,' and so on. In fact, many verbs which take affected objects in the accusative take dative objects instead when they are combined with a particle that indicates that the object is moved to a different location ((36a-d) from Barðdal (1993), (36e-f) from Maling (2001)).

- (36) a. Hann moka^r snjó.
he shovels snow.ACC
- b. Hann moka^r snjónum burt.
he shovels the.snow.DAT away
- c. Hann sópa^r gólfið.
he sweeps the.floor.ACC
- d. Hann sópa^r ruslinu saman.
he sweeps the.garbage.DAT together
- e. Hann þeyti^r rjómann.
he whips the.cream.ACC

- f. Hann þeytir laufunum burt.
he flings the.leaves.DAT away
- g. Hann stappaði kartöflur.
he mashed potatoes.ACC
- h. Hann stappaði niður fótunum.
he stamped down the.feet.DAT

Here, the particle signals a difference in the way the event involves the object, and a different case is used; but recall from (18) in section 3 that particles do not generally affect case assignment. It is only when the Aktionsart is changed in precisely this way that the particle matters.

With the possible exceptions of some problematic cases discussed immediately below, the generalization is robust that measuring-out objects in Tenny's sense are accusative. This falls out from the theory of accusative case presented in the previous sections. Take Krifka's mapping of events to objects to be the formal statement of measuring out ($\forall e, e', x[R(e,x) \wedge e' \leq e \rightarrow \exists x'[x' \leq x \wedge R(e',x')]$); it states that for a certain class of predicates, for every subpart of the event, there is some corresponding subpart of the object, such that the relation between the event and the object (say, eating) also holds between the subpart of the event and the subpart of the object. Thus, for a five minute slice of a half-hour event of eating a chicken, there is a subpart of the chicken which is eaten. The event that the object is mapped onto is quite intuitively the event introduced by V. If the event introduced by V occupies the same timespan as the event introduced by v, then mapping to objects will give the right results for the event denoted by vP. However, if the V event and the v event have distinct extensions in time, as with the dative objects, then the object will not map to vP, even if it maps to VP.

There are some exceptions to the generalization that dative objects do not undergo internal change, which I enumerate here (i-iv).

(i) As noted in section 1 above (see example (4)), Barðdal has pointed out that verbs meaning 'wash' and 'scratch' take dative when the object is an experiencer. My claim is then that although the towel in 'wash the towel' may measure out the event, the baby in 'wash the baby' is not seen as doing so.

(ii) Verbs meaning 'kill' usually take the dative, though the very common *drepa* takes accusative. Possibly, the object of verbs of killing is seen as an experiencer, in the same sense as in (i); alternatively, verbs of killing are conceptualized as involving the initiation of a dying event in which the influence of the agent does not persist. In any case, it seems reasonable that the patient does not measure out the event in the way formalized in mapping to objects. Maling (2001) points out that accusative-taking *drepa* is a more general term which can be used for stopping an engine, a piece of music, and so on.

(iii) As Maling (2001) notes, verbs referring to destruction often take the dative.

- (37) a. eyða ‘destroy, exterminate, delete’
b. granda ‘damage, destroy’
c. spilla ‘spoil, harm,’
d. tortíma ‘destroy, annihilate’

Again, these might be thought of as involving the initiation of a termination event, with the patient then terminating independently of the subject. There are also many verbs with similar meanings that govern accusative.

- (38) a. eyðileggja ACC ‘destroy’
b. skaða ACC ‘damage, harm’
c. skemma ACC ‘damage, spoil’
d. gereyða ACC ‘annihilate, liquidate’

My claim would be that these verbs are conceptualized as involving event identification, in contrast to those above. However, I have not uncovered any independent evidence that this is the case. At worst, the cases can be lexically stipulated, as on other accounts. Nonetheless, it is possible to pursue the idea that such stipulation always carries additional entailments.

(iv) A final category of verbs with affected objects that appear in the dative is a set of various verbs with *saman* ‘together,’ noted by Barðdal (1993) (whence (39a-b)) and Maling (2001) (whence (39c-d)).

- (39) a. Hann blandar djús.
he mixes juice.ACC
b. Hann blandar vatninu saman við djúsið.
he mixes the.water.DAT together with the.juice
c. hræra deigið ‘mix the dough’ (acc)
d. hræra þurrefnunum saman ‘mix the dry ingredients together’ (dat)

Maling notes that many such verbs allow the accusative even in the presence of *saman*, and that other verbs require accusative regardless of the presence of *saman* (e.g. ‘glue,’ ‘nail,’ ‘sew,’ ‘put’). She finds that there is a tendency to use dative when things such as ingredients are mixed, while items which are simply joined remain dative. This situation is problematic, but does not constitute a clear counterexample to the claim that dative objects cannot measure out an event.

Previous accounts of Icelandic case have always, in the end, relied on stipulated lexical entries. I claim here, among other things, that there are limits to what can be stipulated. Datives cannot measure out, because the only v head available to license

dative fails to bind V in the way necessary for measuring out. Accusatives cannot be involved in disjointed subevents, because the accusative v necessarily binds V in a way that makes them coextensive.

An interesting illustration of this can be drawn from Maling's (2001) 'verbs of heavenly emissions.' The effluence in meteorological phenomena appears in the dative case in Icelandic, giving examples like those in (40).

- (40) a. Eldfjöllin spúa eldi og eimyrju yfir landið.
the.volcano spewed fire.DAT and embers.DAT over the.land
- b. Það ringdi blómum yfir líkkistu Díönu prinsessu.
it rained flowers.DAT over casket Diana princess

Here it is reasonable to think that the subject does not remain continuously involved in the event, but simply launches (to the extent that there even is a subject in (40b)). Maling includes verbs of 'bodily emission' under the same rubric.

- (41) a. Heldurðu að ég skíti peningum?
think.you that I shit money.DAT
- b. Ranúr hafði slefað mörgum lítrum af munnvatni á gólfteppi.
Ranúr had drooled many liters.DAT of drool on the.carpet

If these examples are part of the same semantic frame as the ballistic motion cases discussed in section 2 above, then it must be that there is a subevent of movement of money or drool which is set in motion by some initiating event, without the initiating event and the movement event being too intimately linked. This may not be a necessary fact about human language, but rather a convention adopted in Icelandic.

Another factor that is surely subject to language-specific lexical convention is the possibility of monovalent verbs with dative or accusative case, amply documented by Jónsson (Jónsson (1997-1998), Jónsson (2000), Jónsson (2001)). Yet even here, my claim is that learning that a given verb takes dative or accusative cannot be separated from learning that it has certain aspectual properties; specifically, the dative and accusative should not be possible without there being two subevents, unlike the true unaccusatives in section 2 (cf. example (9)).

Dative subjects are possible with verbs denoting such emotional experiences such as anger, boredom, or liking (as in (42a)), gradual changes like growing weaker or colder (as in (42b)), and certain verbs of movement (42c). Weather verbs may also appear with dative subjects, as in (42d). (All examples from Jónsson (2000))

- (42) a. Henni kennir til í fætinum
 'Her legs ache'

- b. Félaginu hefur hnignað
‘The club has declined’
- c. Bátnum hvolfdi á miðju vatninu
‘The boat capsized in the middle of the lake’
- d. Spurningunum rigndi yfir kennarann
‘The teacher was showered with questions’

It is instructive to compare these with typical accusative-subject constructions, also catalogued by Jónsson. Accusative subjects are possible with certain verbs denoting physical sensations like ticklishness (43a), changes of state like breakage or freezing (43b), and certain kinds of movement (43c-d). (Again, all examples from Jónsson (2000).)

- (43)
- a. Mig kitlar í nefið
‘My nose tickles’
 - b. Tjörnina lagði.
‘The lake froze over’
 - c. Manninn tók út
‘The sea seized the man’
 - d. Bátinn hóf fyrir straumi.
‘The boat was carried by the current’

These examples are systematically different from the kinds of examples found with dative subjects. In the dative examples, it is easy to imagine an initiating event which caused the legs to ache, the club to decline, the boat to capsize, or the teacher to be showered, without that initiating force being active throughout the aching, the decline, and so on. In contrast, in the accusative examples, the cause of the tickling, freezing, or being swept away is constantly present throughout the tickling, freezing, or being swept away. Furthermore, in the case of (43b), the accusative is the measure of the event, whereas this is not a possible interpretation for any dative subject.

These remarks are not sufficiently precise to predict the case on all non-nominative subjects; it is possible that separate statements must be made to the effect that experiencers tend to be dative under certain conditions; see Jónsson (2001) for extensive discussion. The pattern here is suggestive, however. When some event has been initiated by some external force, and some change of state or location for some theme then occurs, then the theme appears in the dative. When the initiator of the event remains involved in what happens to the theme, then the theme is accusative. When there is no initiator, or when the theme is the initiator, then the theme is licensed at the clause level, and in a finite clause, will appear in the nominative; this is what happens with true unaccusatives, and is the usual case for intransitive verbs in Icelandic.

6. Conclusion

Icelandic case has been the subject of much fine work, and the account developed here would not have been possible without works such as Sigurðsson (1989) or papers such as Yip et al. (1987) or those in Maling and Zaenen (1990). It will have been clear from my references to it above that I have drawn especially heavily on Maling's (2001) organization of dozens of dative-taking verbs into semantic categories.

However, the account developed here departs from previous accounts in significant ways. It distinguishes itself from those which postulate a connection between case and thematic roles, as those accounts make direct reference to entailments about the case-marked noun phrase. Here, the entailments having to do with the noun phrase are indirect, and are the result only of facts about the event structure in a larger way. This account also distinguishes itself from those which postulate lexical specification of case; such accounts typically acknowledge regularities but then place no constraints on what can be lexically stipulated, rendering them incapable of making predictions. I predict strongly that datives cannot be measures of events, and that accusatives cannot be dissociated temporally from events.

As I have mentioned above, Marantz (2001) has argued that verbs consist of a functional part, *v*, which contains syntactically relevant information, and a lexical part, which does not (his \checkmark , here *V*). On his view, it is not possible to stipulate in a lexical entry that a verb will appear with a particular case. Such syntactic information can only come from the functional head, *v*. The account I have developed here is fully compatible with such a view, as the information necessary to determine whether object case is accusative or dative is entirely located in *v* (in the manner of the binding of the lower event); which roots can be combined with in the 'dative' fashion (or, seen a different way, by the 'dative' *v*) is determined by the event structure offered for binding by the root. Certainly, many challenges for this account remain. Not least among them, the dative-taking *v* must be prevented from combining with roots like *keyra* 'drive' (cf. (5a)), while the accusative-taking *v* must not combine with *aka* 'drive' (cf. (5b)). Ultimately, this account may be brought down by such apparent minimal pairs. However, in every case I have been able to examine closely, it has turned out that differences can be discerned, often in Aktionsart (in the pair in (5), *aka* in this use is regarded as old-fashioned, and so its event structure might simply be learned, partly on the basis of its case).

If accusative and dative are consistently associated with particular Aktionsarten, then the learner can use evidence from case to infer something about lexical semantics (and vice versa). The learning endeavor is even more greatly facilitated if prepositional cases, which are very high in frequency, can be included as well, and it seems that they can.

There is a regular alternation with prepositions in Icelandic, familiar from many Indo-European languages, whereby prepositions appear with the dative when they have a locative meaning, and the accusative when they have a directional meaning.

- (44) a. Hann synti undir brúnni.
he swam under the bridge.DAT
 ‘He swam (around) under the bridge’ (the location was under the bridge)
- b. Hann synti undir brúna.
he swam under the bridge.ACC
 ‘He swam (to) under the bridge’ (the endpoint was under the bridge)

Prepositions being simpler than verbs, this situation might represent a purer instance of the same contrast noted above for verbal complements. I suggested in section 4 that P does not introduce an event, but possibly it introduces an analogous spatial variable. In the accusative example, there is a mapping of the event of swimming onto the path between the initiation of the event and the bridge. In the dative example, there is no such mapping. Thus it seems that the accusative-assigning element of the prepositional phrase determines a mapping, like its verbal counterpart. Note that the mapping is not to the bridge, but to a salient path (cf. Ramchand 1997). This is perfectly consonant with the account here; the accusative assigner demands a mapping, but not necessarily to the noun phrase which gets the accusative case.

As a final remark, note that the account laid out here, combined with that of Pesetsky and Torrego (2001), eliminates one of the strongest cases for a purely uninterpretable feature, that is, a formal feature with no semantic content. This raises the hope that the theory of features can be simplified by eliminating uninterpretable features altogether (the last bastion will be grammatical gender).

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