Subject-Marking in Hindi/Urdu: A Study in Case and Agency

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Abstract. Semantic parameters of agency and affectedness have long been known to affect the realization of case-marking. This paper proposes an approach which decomposes agency and affectedness into semantic properties, loosely based on Dowty's proto-role theory, but conceived in terms of privative opposition and organized into a lattice. This results in a structured framework which is capable of modelling both case systems and case alternations, as is demonstrated by an account of subject-marking in Hindi/Urdu.

1 Introduction

Modulation of semantic parameters such as agency and affectedness are known to affect the realization of case-marking (Hopper and Thompson(1980)). For instance, subjects low in agency and/or affected are cross-linguistically at risk to be marked by an alternate case from that of canonical subjects, should the language dispose of a sufficiently rich case system. Yet, explicitly connecting individual parameters with the semantics of case alternations has largely proven elusive. One difficulty is that a single case, e.g., the dative in Hindi/Urdu, can serve to mark a variety of semantic distinctions, including both experiencer and recipient arguments. The semantic content of a case then must both account for its diverse uses and display the interrelation among them. A second complication is that realizations of case, and a fortiori, case alternations, often cannot be attributed to one sole parameter, but arise only in the context of the interaction of several, necessitating an account of this interaction in precise terms. In what follows, a method is proposed to define case in terms of the parameters of agency and affectedness—reanalyzed as emergent properties dependent on more primitive, constituent properties and hierarchized in a lattice structure. This provides a structured, explanatory device for how a language marshals morphological resources to indicate subtleties of argument realization, as demonstrated in an application to the subject-marking patterns in Hindi/Urdu.

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2 Decomposing Agency and Affectedness

Whatever view one holds on the central function of case-marking, whether it serves to index an argument with a semantic property or differentiate between arguments (cf. (Song(2001)) for the debate), it is clear that languages which develop case systems use them at least to mark subjects and objects. A large body of research conducted on argument structure has demonstrated that subject and object selection is largely determined by the thematic content associated with the arguments of a given predicate, e.g., which participants are agents and which are patients. Since case is responsible for marking such arguments, there is clearly a relation between thematic content and the eventual marking patterns in case languages.

Investigations of argument structure have made use in one way or another of the notions of agency and affectedness as those underlying what determines which participant is an agent or a patient, and ultimately, subject or object, of transitive constructions; however, taking the concepts of 'agent' and 'patient' in themselves as primitives has proven to be too unwieldy to account for more fine-grained syntactic and morphological behavior. The work of (Dowty(1991)) provided a theoretical advance by decomposing the larger notions of 'agent' and 'patient' into constituent properties, permitting 'agent' and 'patient' to become emergent properties, and amplify the level of detail in argument structure analyses.

On Dowty's account, thematic roles emerge from a set of "Proto-Properties", event-based properties entailed by the verb, relativized to Proto-Agents and Proto-Patients. Proto-Agent properties include "causally affecting another entity", "motion (relevant to another participant)" while representative Proto-Patient properties are "causally affected by another entity" and "stationary (relevant to another participant)". While the Proto-Role theory indeed provides a more suitable account of what it is to be an 'agent' or 'patient', the choice and organization of the primitives limits its application. As can be seen by the above Proto-Properties, a two-participant transitive situation is taken as given. This assumption leads to difficulties in treating constructions which deviate from the transitive paradigm, such as middles and intransitives. Further, the properties of (Dowty(1991)) include the complex notions of 'affectedness' and 'causation' taken as primitive. Affectedness, while used in a variety of ways in the literature, has generally been conceded to be not a binary concept, but a three-way distinction between unaffected, partially or totally affected.[1] Causation implies at least two participants and some sort of direct link between them, and taking such a property as primitive reinforces the bias towards transitive situations.[2] An increase in simplicity and empirical reach can be gained by reformulating the properties without reference to other participants and complex notions.

The approach here retains the use of event-based properties entailed by the verb, as in (Dowty(1991)), to capture the parameters of agency and affectedness; yet, rather than using two distinct sets of properties for agents and patients, I use one set of properties

[1]The distinction between total and partial affectedness has been extensively discussed with reference to the partitive/accusative alternation in Finnish, cf. (Krifka(1992)).

[2]See (Grimm(2005)) for an empirical problems with the argument constellations of verbs in the middle voice that arise if 'causally affecting another participant' is taken as primitive.

which gives rise to a privative opposition between agents and non-agents.

I assume a set of properties which refer to modes of participation in events: *instigation*, *motion*, *sentience*, *volition*, and different degrees of *persistence*. *Instigation* entails any argument effecting the event designated by the predicate. *Motion* is entailed just in case the argument is required to be in motion. *Sentience* designates conscious involvement in the event (Rozwadowska(1988)) while *volition* designates deliberate engagement in the event. Agents, then, will typically possess one or more of these properties.

Persistence is a two-tiered notion, for something can persist existentially, that is, its essence remains the same throughout the event/state, or it can persist qualitatively—i.e., it persists in all its particulars. Either of these can obtain at the beginning and/or the end of the event—in terms of features, we have the following set: *existential persistence (beginning)*, *existential persistence (end)*, *qualitative persistence (beginning)*, and *qualitative persistence (end)*.

Agentive	**Non-Agent ('Patient')**
volitional	−volition
sentience	−sentience
instigation	−instigation
motion	−motion
existential persistence(beginning)	− existential persistence(beginning)
existential persistence(end)	− existential persistence(end)
qualitative persistence(beginning)	− qualitative persistence(beginning)
qualitative persistence(end)	− qualitative persistence(end)

Table 1.1: : Agency Properties

As shown in Table 1.1, the set of properties above establishes a privative opposition between agents and non-agents (of whom patients are special subset), rather than equipollent opposition between agents and patients. This yields a continuum of agency, from maximal agents to non-existent entities. This move is motivated in as much as agents can stand in opposition to arguments which do not strictly qualify as patients, e.g., objects of statements of negative existence, incorporated/cognate objects ("sing a song") or narrow-scope objects of verbs such as "seek"—i.e., arguments which do not entail any existence independent of the event at hand. In contrast, patients are typically affected by the event, which presupposes existence prior to the event, thus they minimally entail *existential persistence (beginning)*. Therefore, the opposition between agents and patients falls out from this feature system in that agents will possess total persistence along with other agency properties while patients will generally possess no properties save initial persistence and possibly *existential persistence (end)*.

Parallel to the manner that the gradations of agency can be accounted for by different combinations of the participant properties above, affectedness is defined over a range of combinations holding in common a lack of *persistence*. Affectedness, in its most basic

semantic sense, designates that an affected object is altered by the event in some manner, i.e., "changed or moved" (Anderson(1979)).[3] Without any loss of descriptive power, the concept of affectedness can be inverted and recast in terms of *persistence*. Further, this feature configuration is able to capture the different degrees of affectedness with respect to existence. Totally affected patients, e.g., of verbs of destruction/consumption ('destroy', 'eat'), entail that their object argument persists existentially at the beginning of the event, but not at the end. Patients which are partially affected (e.g., objects of verbs such as 'damage' or 'move') persist existentially throughout the event, but do not persist qualitatively, i.e., they are changed in some manner. Unaffected entities, most often agents, persist both existentially and qualitatively throughout the event.

While the above choice of properties has attempted to avoid taking complex notions as primitive, such as cause or control, the feature set remains conservative with respect to the advances made by the Proto-Role theory. If a descriptive need of such complex properties arises, they can be defined in terms of the stated primitives. Causation can be defined over pairs of arguments where the causer entails *instigation* and the causee is restricted from *qualitative persistence (end)*. The notion of control has also been found useful as a descriptive label for distinctions made in case alternations to be treated below. External control, where one argument controls another, can be defined over entailments for two arguments, (ArgX: [+ *instigation*,+ *sentient*, + *volition*], ArgY: [− *instigation*, − *volition*]). Internal control, normally used with intransitives where the argument has control over the event, can be defined for single arguments as clusters containing [+ *instigation*,+ *sentient*, + *volition*]. These definitions make apparent that cause and external control are relations between participants, in contrast to the other properties which are defined only with respect to the event.

2.1 Constructing the Agency Lattice

Merely by positing these primitives in the manner above, a combinatorial argument ensues. Since verbs may entail various combinations of properties, a natural question is which combinations are possible given the set of properties. Eight binary properties lead to a total of 256 possible combinations. In the following, I will show how these possible combinations can be at once constrained from the possible combinations to the logically and conceptually valid combinations and structured via a lattice, a move inspired by (Aissen(2003)).

[3]This is certainly not the only sense in which "affectedness" has been appealed to. The heterogeneous range of senses which "affectedness" has accumulated include aspectual/holistic affectedness, as in the well-discussed spray/load alternation (see (Levin and Hovav(2005), p. 209) and references therein), and a sort of empathetic affectedness whereby affectedness is correlated with animacy, the degree of animacy purportedly matching the degree of affectedness for Differential Object Marking (Naess(2004)). Note that these uses are dependent on properties of objects, spatial and animacy, respectively, and not strictly of events, which permits restricting the notion of affectedness used here to be the most basic one, i.e., being altered in some manner. The general approach advocated here is that such specific notions of affectedness should arise from the interaction of event-based and object properties, and restrict what is taken as primitives of agency to a minimum. See further argumentation in (Grimm(2005)).

Logical entailments among the features constrain the combinations possible. For instance, *volition* entails *sentience*, since only sentient beings are capable of volition, and *−existential persistence (end)* entails *−qualitative persistence (end)*, since if an entity does not exist at the end of the event, clearly none of its qualities do either. The possible combinations are further constrained by the conceptual impossibility of arguments designating entities which do not possess at least the feature *existential persistence (beginning)* combining with agency properties such as *motion* or *sentience*.

The remaining combinations can then be given greater structure. One can regard the participant properties as atoms from which "proto-roles" are composed. These atoms and their combinations can be ordered in terms of inclusion—i.e., both *motion* and *instigation* are included in the composite term *motion∧instigation*. This set of atomic elements, ordered by inclusion (i.e., a partial order), induces a mathematical structure, a lattice, shown in Figure 1.1 and referred to henceforth as the *agency lattice*.[4]

The lattice makes the privative opposition holding among the properties visible: the highest node possesses all the properties (the maximal agent) and the lowest node possesses none, not even independent existence. Further, agents are upwards closed in the lattice while patients are downward closed. That is to say, if some node x of the agency lattice is an agent relative to a given predicate, then all the nodes higher than x are as well, and conversely, if some node y of the agency lattice is considered a patient relative to a predicate, then all the nodes lower than y are as well.[5] This property of the agency lattice guarantees that if the agent (patient) argument of a predicate is satisfied when instantiated by an entity of a given level of agency, it will also be satisfied when instantiated by an entity possessing a higher (lower) level of agency.[6]

This lattice then provides a structure upon which argument structures can be mapped. The focus now turns to case-marking, demonstrating how the lattice structure can represent different cases as continuous regions of the lattice, and in the process, bring forth the commonality between canonical and non-canonical uses of a given case.

2.2 Connecting Case and Agency

In explaining the behavior of a given case, one is confronted with both syntactic uses, i.e., marking the arguments of a predicate, and often also semantic uses, e.g., case alternations. Case is often seen as primarily syntactic, therefore the question arises concerning the origin of the semantic properties which underlie case alternations. Further, what is the connection between a syntactic and a semantic use?

The above lattice provides a way to capture the semantic space of argument structure via agency properties. A case, in its syntactic function will refer to a region of this space,

[4]Recall that a partially ordered set is a lattice if every non-empty finite subset has a least upper bound and a greatest lower bound.

[5]More formally: A subset U of a partially ordered set is upwards closed if x in U and $x \leq y$ implies that y belongs to U and, conversely, U is downwards closed if $x \geq y$ implies that y belongs to U.

[6]Of course, barring contradictions of entailments, i.e., the patient argument of 'kill' will typically not be satisfied by arguments below nodes containing *sentience*.

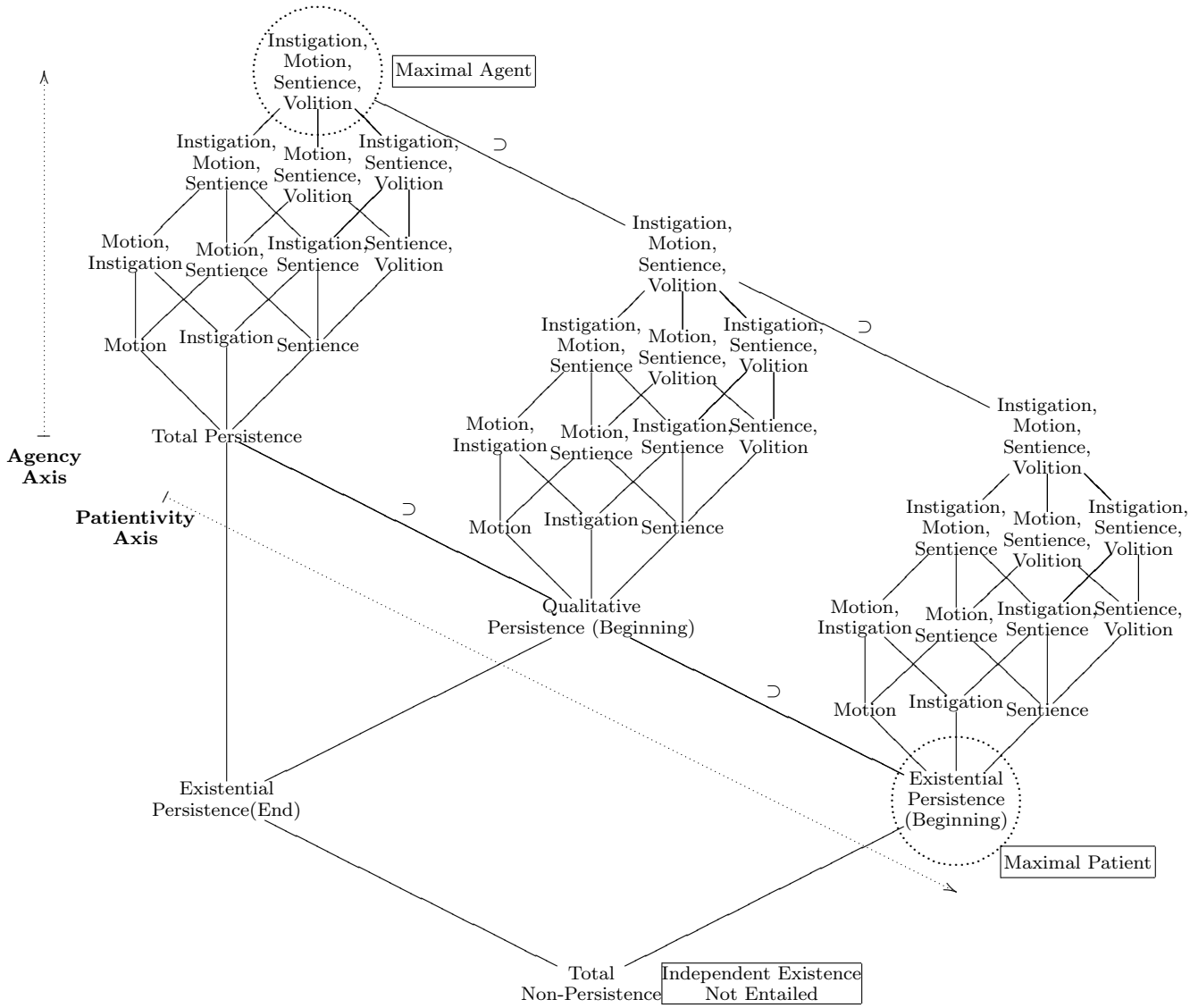

Figure 1.1: The Agency Lattice

since it marks a delimited class of arguments. By associating case with the region of its primary use, and hence the semantic properties therein, a general answer is provided to the above questions: the semantic properties of its primary, syntactic use provide the semantic content for extended uses. In more concrete terms, if a case marks a class of arguments, say indirect objects, then the case marker is associated with the semantic properties of that class, here, recipients and beneficiaries. But then, a case marker, equipped with these semantic properties, can be used to express notions and relations appropriate to these properties beyond its primary syntactic function.

A second way in which a case-marker is connected to semantic content is due to being historically conditioned. Case-markers generally originate in other lexical material, having been recruited to express the requisite syntactic function, and thereby have undergone a

grammaticalization process (e.g., the verb 'give' can be recruited as a marker of beneficiaries, cf. (Lord(1989))). Given that case-markers originate from other lexical material , case-markers come into being associated with one or more nodes of the lattice appropriate to the original lexical material. Here, too, the agency lattice provides predictions of constraints on the grammaticalization process of markers of verbal arguments. The process of grammaticalization—weakening of the original sense, generalization to grammatical function, and picking up other senses—can be seen as spreading to other nodes. The lattice, however, predicts that this will only occur with connected nodes, restricting the types of grammaticalization patterns that should be observed.

These two manners in which cases are connected to semantic content are, in fact, intrinsically linked. Whatever lexical item is recruited to become a case-marker is presumably recruited because its sense coheres with that of the syntactic function that is in need of representation, therefore, it is expected that the semantic content of the lexical item with respect to participant properties should fall within the relevant region of the syntactic function. In the other direction, the particular properties inherent to the recruited lexical item will constrain the semantic space which is actually instantiated by the case-marker, determining its possible grammaticalization trajectories.

The methodology for modelling usages of case via the lattice follows directly from the above considerations. First, we map a case to the region corresponding to its primary use and/or that of the lexical material from which it was recruited. It is then incumbent on the semantic properties of that region to provide an explanation for extended uses of the case, as non-canonical subject markers (e.g., experiencers) and in case alternations. Should the case exemplify highly grammaticalized uses, such as becoming an all-purpose subject-marker, this should be consistent with spreading among connected nodes. It will be shown that the results of this methodology coincide with the descriptive accounts familiar from the literature. Thus, an explanatory account of semantic uses of a case can be derived from its syntactic use without further stipulation. I now turn to applying this methodology to the four cases in Hindi/Urdu relevant for subject-marking.

3 The Case-Marking of Subjects in Hindi/Urdu

In this section, I will map the Hindi/Urdu case system to regions of the lattice. The mappings will be established by examining the primary uses of the cases. These mappings will then be shown to correlate with the marked values that uses of the cases assume in opposition to the unmarked nominative.

3.1 The Dative

The core function of the dative is to mark the indirect object, which is canonically a recipient/beneficiary. With respect to the agency properties above, clearly a recipient/beneficiary is 'consciously involved' in and is affected qualitatively by the event. As such, the dative will be ascribed the sole property of *sentience* and be located on the *Qualitative Persistence*

(Beginning) branch of the lattice, as shown in Figure 1.2.

The dative has an extended use, marking subjects of certain experiential and psychological predicates: physical sensations/conditions, psychological/mental states, wanting/needing and obligation or compulsion. Such predicates clearly require the subject to be sentient, and further, indicate that they are affected in some manner, correlating with the semantic properties ascribed to the dative's primary use.

Further, (Masica(1991)) observes that these verbs with dative subjects share the trait that their subjects are non-volitional, in opposition to nominative subjects, which are unmarked for volitionality. This is exemplified by the pair in (1) (from (Mohanan(1994))), where while the nominative subject of (1a) permits both volitional and non-volitional readings, the dative subject of (1b) can only be taken as non-volitional.

(1) a. tuṣaar k^{h}uš huaa
Tushar.NOM happy.NOM become.PERF
Tushar became happy.

b. tuṣaar=ko k^{h}ušii huii
Tushar.DAT happiness.NOM happen.PERF
Tushar became happy. (Lit. To Tushar happiness happened.)

This coincides with the region assigned above to the dative, which does *not* extend to nodes with the property of *volition*, since this is not relevant for beneficiaries/recipients.

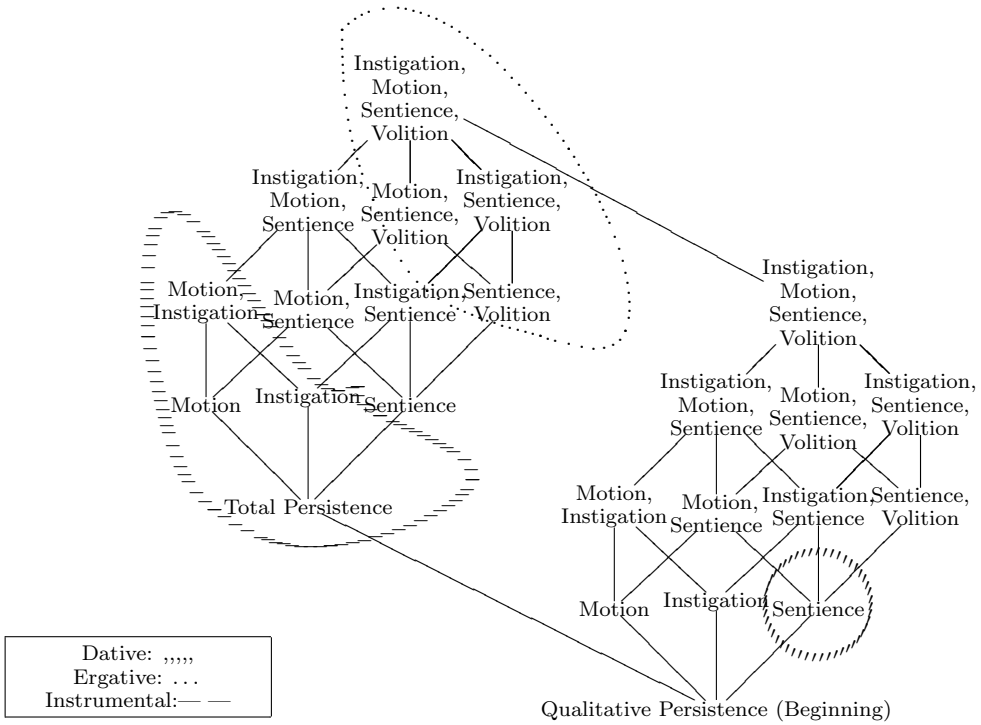

Figure 1.2: Subject Marking in Hindi/Urdu

3.2 The Instrumental

The core use of the instrumental is to mark instruments involved in an event. In mapping the instrumental case, note that prototypical instruments are not sentient, although capable of motion and instigation (at least co-instigation along with an understood agent), and are viewed as persisting throughout the event—i.e., if an axe is used to cut, the axe persists throughout the cutting event. Therefore, prototypical instrumentals are located on the *Total Persistence* branch of the lattice, yet restricted from the nodes containing *sentience*, as shown in Figure 1.2.

In its use as a subject marker, the instrumental principally marks a demoted (or passive) agent. The location of the instrumental accords with the general function of the passive agent, as a source of instigation of the event, while properties such as *volition*, or even *sentience*, are generally not at issue for passive agents.

3.3 The Nominative

In Hindi/Urdu, the nominative is not morphologically marked and used for both subjects and objects. In contrast to the other cases, the nominative can mark any level of agency, i.e., the nominative is unmarked for agency; thus, the nominative is not associated with any particular region of the lattice.

3.4 The Ergative

The examination of the ergative must begin with its use as a subject marker. In Hindi/Urdu, the subject is obligatorily marked ergative in perfective transitive sentences, whereas intransitive verbs generally require the nominative. Yet, there are a small number of transitive verbs which allow both, such as 'jānnā', designating 'to know' with a nominative subject and 'to find out' with an ergative subject (see discussion and further examples (Mohanan(1994))). Note that the latter is an event over which the subject has internal control—which in terms of the semantic properties assumed here reduces to *volition*. The canonical region for the ergative thereby is mapped on the lattice to the region containing the feature *volition*, and constrained to the *Total Persistence* branch, since the ergative only marks agents, which are prototypically unaffected.

The ergative also enters into an alternation with the nominative in intransitive verbs, as in (2) (see (Butt and King(2005))).

(2) ram(=ne) k^{h}as-a
Ram.M.Sg.NOM(ERG) cough-Perf.M.Sg
Ram coughed (purposefully).

(Butt and King(2005)) states that the relevant criterion here too is internal control (i.e., *volition*), for which the ergative is marked and the nominative unmarked, which is precisely what follows from the above mapping.

The ergative does, however, occur in instances where volitionality appears to be a non-issue, as an anonymous reviewer pointed out. Natural forces constitute the main class of exceptions, in phrases such as "The storm broke the glass" (see (Mohanan(1994))). Given that the ergative has developed into the case of the subject in perfective clauses, such an extension of meaning beyond the canonical region is expected, which is in turn consonant with the representation of the grammaticalization process discussed in section 2.2.

4 Equipollent Case Alternations

The above has examined instances of marked cases alternating with the unmarked nominative. Hindi/Urdu also disposes of alternations between two marked cases, i.e., equipollent alternations. These are a particularly challenging use of case for which to account, since although the data below are minimal pairs, differing only in case-endings, they display a complex interaction of properties. Yet, we will explain these alternations directly from the cases' position on the lattice, without further stipulation.

4.1 Ergative/Dative Alternation

The ergative-dative alternation occurs in this construction found in the Lahori and Delhi dialects (Butt and King(2005)):

(3) a. nadya=ne zu ja-na hɛ
Nadya.F.Sg.ERG zoo.M.Sg.OBL go-Inf.M.Sg be.Pres.3.Sg.
Nadya wants to go to the zoo.

b. nadya=ko zu ja-na hɛ
Nadya.F.Sg.DAT zoo.M.Sg.OBL go-Inf.M.Sg be.Pres.3.Sg.
Nadya has to/wants[7] go to the zoo.

By associating cases with complexes of features, as above, the base requirements for such modal uses of case are secured: the ergative is associated with volitionality, and its minimal interpretation is the lowest node of its region, containing only *volition* and *sentience*, the semantic prerequisites for volitive modals, while the dative is restricted from *volition* nodes, is marked as *sentient* and is qualitatively affected with respect to the event, all of which are semantic prerequisites for deontic modals.

[7]This gloss seems to contradict the dative's status as marking non-volitionality. Recall from section 3.1, one of the verb types that takes dative subject is 'wanting/needing'. Yet, (Platts(1884)) gives examples of this predicate, named in (Masica(1991)) as '*cahiye*', to be: "Is necessary, is needful. . . ; should or ought . . . " Meanings such as these accord both with a non-volitional interpretation and with the deontic sense under discussion here, standing in clear contrast to the more straight-forward volitive meaning of the ergative.

4.2 Instrumental/Dative Alternation

In Hindi/Urdu, the causee of causative constructions is normally marked by the instrumental; however, ingestives ('eat', 'drink'), verbs of motion, perception ('see', 'hear'), but also 'write', require the dative to mark the causee, and certain verbs alternate between the two, as in (4) (from (Butt(1998))).

(4) a. anjʊm-ne saddaf=ko masala cak^h-va-ya
Anjum.F.Erg Saddaf.F.Acc spice.M.Nom taste-Caus-Perf.M.Sg
Anjum had Saddaf taste the seasoning.

b. anjʊm-ne saddaf=se masala cak^h-va-ya
Anjum.F.Erg Saddaf.F.Inst spice.M.Nom taste-Caus-Perf.M.Sg
Anjum had the seasoning tasted by Saddaf.

(4a) entails that the causee is affected by the event and to some degree "consciously involved", while the causee in (4b) is unaffected and is only indirectly involved (Butt(1998)). Both distinctions fall out from the position of the cases on the lattice. The instrumental case, located on the *Total Persistence* branch, is viewed as unaffected, while the dative, on the *Qualitative Persistence (Beginning)* branch, as affected. Second, the dative is associated with *sentience*, indicating conscious involvement, whereas the instrumental is restricted from this property. Therefore, the semantic content of the instrumental and dative cases' regions on the lattice delivers an account of their participation in this alternation.

5 Conclusion

A re-working of the approach of (Dowty(1991)) into one set of features, in terms of privative opposition, and hierarchized in a lattice has led to a structured framework which can account for the fundamental syntactic and semantic distribution of case. The efficacy of the system has been shown to allow for well-grounded and effective explanations of a set of data that has proved to be recalcitrant for linguistics analysis, e.g., case alternations in Hindi/Urdu.

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