Towards a Typology of Transitivity Splits

Towards a Typology of Transitivity Splits[1]

分裂他動性の類型論に向けて

Andrej L. Malchukov （アンドレイ・マルチュウコフ）

Institute for Linguistic Studies（Russian Academy of Sciences）, St.-Petersburg and
Max Planck Institute for Evolutionary Anthropology, Leipzig
（ロシア科学アカデミー言語学研究所／マックスプランク進化人類学研究所）

Abstract: The paper addresses the issue of transitivity splits, that is, a cross-linguistic predisposition of particular verb classes for transitive or intransitive encoding. Taking Tsunoda's（1981; 1985）verb type hierarchy as a point of departure, it is argued that the hierarchy gains in semantic coherence if recast as a two-dimensional hierarchy（or a two-dimensional semantic map）. The two-dimensional hierarchy can account for counterexamples to the one-dimensional hierarchy, as well as allows comparing languages（e.g., English vs. Japanese）more consistently with respect to transitivity extensions along each of the two dimensions.

《要旨》本稿は分裂他動性を考察する。即ち，ある出来事を描写するのに，他動詞を用いるか，自動詞を用いるかに関する通言語的な傾向を考察する。本稿は，Tsunoda（1981, 1985）の動詞階層を出発点として，この階層を二次元の階層（または二次元の意味地図）に修正すれば，意味的に一貫したものになることを示す。二次元の階層を用いると，一次元の階層の反例を説明できる。更に，諸言語（例えば英語と日本語）の間に見られる違いを一貫した原理で説明できる。

1. Transitivity splits and verb type hierarchies

In the early 1980ies two important studies appeared, both advocating a prototype approach to the notion of transitivity: Hopper & Thompson（1980）and Tsunoda（1981）. In an influential paper Hopper & Thompson argued that transitivity is a gradable and multi-factorial notion. Among the features contributing to high transitivity they mention both parameters relating to participants of the event, such as the subject's volitionality and the object's affectedness and definiteness, as well as properties of the event itself, such as perfectivity, affirmativity and reality. A similar approach has been independently proposed by Tsunoda（1981）, who suggests that a two-argument clause will receive a transitive encoding, if it satisfies the Effectiveness Condition（EF-CON）. EF-CON is again seen as a multi-factorial notion including such parameters as impingement of action on O[2]（O is affected and/or attained）, O-individu-

---

[1] The present paper originated in the project "Case cross-linguistically" conducted at the university of Nijmegen in 2003-2006, and draws on Malchukov（2005）and subsequent publications（e.g., Malchukov and de Swart 2009）. Recently, this topic has been taken up in the research project on valency classes currently conducted at Max Planck Institute for Evolutionary Anthropology（Leipzig）.

[2] The following abbreviations are used in the text/glosses: A = transitive subject; ABS = absolutive case; ACC = accusative case; ADVL = adverbializer; AGRabs = absolutive（S/O）agreement paradigm; AGRdat = agreement with indirect（dative）object; AGRs = agreement with S; AGRo = agreement with O; ALL = allative case; AOR = aorist; CL = class/gender marker; COND = conditional; DAT = dative case; DECL = declarative（mood）; DU =

ation（specificity, definiteness）, completedness of the verbal action, actuality and telicity of the event. As compared to Hopper & Thompson's article, Tsunoda's paper is somewhat restricted in scope as it primarily focuses on ergative languages（alternations of the ergative and intransitive patterns）. On the other hand, it is broader in scope in that it pertains not only to transitivity alternations, also discussed by Hopper & Thompson, where the same verb takes alternative case-frames depending on the properties of the clause（tense/aspect/mood（TAM）properties）, but also to verb splits, where different lexical classes of verbs subcategorise for different case-frames. Tsunoda makes an important point that "TAM splits［i.e. transitivity alternations, A.M.］and verb splits are fundamentally no different from each other, their semantics and case-marking mechanisms being governed by the common principles"（Tsunoda 1981: 391）. The principles alluded to in the quote above pertain to EF-CON. For example, it has been observed that incompleteness/ imperfectivity can condition a transitivity alternation in some languages; not surprisingly, the verbs, which like *look for* include the property of non-completeness into their lexical meaning, tend to select for an intransitive pattern. Similarly, since dynamicity/telicity has been identified as a factor contributing to high transitivity in TAM-conditioned transitivity alternations, it is not surprising that intrinsically stative verbs such as *like*, which lack these characteristics, often fail to take a transitive case-frame.

In the present review I continue the line of research on transitivity splits pioneered by Tsunoda.[3] As a starting point I shall take the verb type hierarchy proposed in Tsunoda's original publication（Tsunoda 1981）, and elaborated on in（Tsunoda 1985）. In these articles Tsunoda suggested the following hierarchy of verb types that predicts distribution of intransitive and transitive patterns in individual languages:

Effective action>> Perception >> Pursuit >>Knowledge >>Feeling >> Relation

The hierarchy above represents a scale stretching from the more transitive verb types on the left to the less transitive verb types on the right. It is called a hierarchy since it predicts that if a verb type lower in the hierarchy allows for a transitive case frame（NOM-ACC in accusative languages or ERG-ABS in ergative languages）, so do the verb types higher in the hierarchy. The hierarchy is semantically grounded in that the verb classes higher in the hierarchy conform to the transitivity prototype（in Tsunoda's terms, satisfy the EF-CON）, while those further to the right fail EF-CON on one or several dimensions. For example, verbs of feeling（cf. *like, fear*）are lower on the transitivity hierarchy since an object of liking（unlike an object of killing or breaking）is less affected and the event itself is atelic. Tsunoda also provided cross-linguistic data in support of the hierarchy（see table 3 in Tsunoda 1981）. In particular, he shows that while some languages（like Eskimo）extend the transitive frame all the way down the hierarchy, other languages show earlier cut-off points. Thus in Djaru（Australian）effective action and perception predicates pattern transitively, while for lower types the

---

dual; ERG = ergative case; F = feminine（gender）; FUT = future tense; IF = illocutionary force marker; IMPFV = imperfective aspect; INCH = inchoative aspect; LOC = locative case; M = masculine gender; N = neutrum（gender）; NOM = nominative case; O =（direct）object; OBJ = object marker; OBL = oblique object; PL = plural; POST-EL = post-elative case; PRES = present tense; PROG = progressive aspect; REP = repetitive aspect; REFL = reflexive marker; S = intransitive subject; SG = singular; TAM = tense/aspect/mood marker; TOP = topic marker.

[3] Transitivity alternations are not addressed in this paper; but see, e.g., Aissen（2003）on Differential Object Marking, the papers in de Hoop and de Swart（2008）on differential subject marking, and Malchukov（2006）and de Hoop & Malchukov（2008）on the issue of transitivity alternations in general.

transitive ERG-ABS frame alternates with an intransitive one (cf. (14) below), and in Avar (Daghestanian) even perception verbs pattern intransitively (taking an OBL-ABS frame; see (12) – (13) below).

Tsunoda's work has been assessed in the typological literature as a major contribution to the cross-linguistic research on the valency patterns for particular verb classes (cf. Drossard 1991, Lehmann 1991: 186, Lazard 1998: 61). Nevertheless, some open questions have been noted as well. The hierarchy seems to conflate several semantic dimensions (Lehmann 1991: 234) and a strict ordering of intermediate verb types seems to be questionable (Lazard 1998: 60) as some verb types are ranked one way in some language and the other way in a different language. This holds, in particular, for the ordering of mental verbs (perception and emotion) with respect to pursuit verbs.

In fact, some typologists have expressed scepticism concerning a possibility of establishing a proper hierarchy of verb classes since it will presuppose an in-depth research into the whole verbal and adjectival vocabulary in a wide range of languages (Lehmann 1991: 187). This can be a reason why this line of research has not been systematically pursued in the subsequent typological literature, and typologists addressing this topic such as Drossard (1991) and Lazard (1998) did not attempt to elaborate on the verb type hierarchy or present a new hierarchy with more predictive power. Nevertheless, following up on Tsunoda's work, I will argue that constructing a universally valid hierarchy is feasible. To this end in §2 I propose to decompose Tsunoda's hierarchy, recasting it in the form of a two-dimensional semantic map. In §3–4 I present some data in support of the particular "routes" (sub-hierarchies) on the semantic map, based on Tsunoda's work, as well as on subsequent descriptive and typological studies. In §5 I summarize the conclusions, as well as note some open questions which are addressed in my current research project on valency classes at Max Planck Institute for Evolutionary Anthropology in Leipzig.

2. Decomposing Tsunoda's hierarchy

There is a general consensus in the functional-typological literature as to what constitutes a semantically transitive construction (cf. e.g., Hopper & Thompson 1980, Comrie 1989, Givón 1985, Dixon 1994, Palmer 1994, Lazard 1998). Thus, Givón (1985: 90) identifies the following properties as contributing to semantic transitivity:

a) *Agent-related*: The prototypical transitive clause has a visible, salient, volitional, controlling *agent-cause* which initiates the event;

b) *Patient-related*: The prototypical transitive clause has a visible, salient, non-volitional, non-controlling *patient-effect* which registers the bulk of change associated with the event;

c) *Verb-related*: The prototypical transitive clause has a compact, perfective, realis verb or verbal tense-aspect-modality.

Thus, the transitive prototype is defined in terms of the role properties of its core arguments, as well as the properties of the verb itself (the latter properties corresponding to the TAM properties described by Hopper & Thompson and Tsunoda will not concern us here). While there is general consensus that the transitivity prototype should appeal to semantic roles of its arguments, there is much less agreement how the semantic roles themselves

should be defined. In some approaches going back to the classic Fillmorian Case Grammar tradition semantic roles are used as labels or supplied with informal definitions（cf. Givón's definition above）, in some other they are characterized in terms of binary features（e.g., Rozwadowska 1988）, or derived from the position of semantic arguments in the event structure or – in somewhat different terms – in the lexical-semantic representation of the verb's meaning（cf. van Valin & Lapolla 1997, Rappaport & Levin 1998, Croft 1991, Wunderlich 1997）. The latter approach seems to be most promising, but definitions have not been offered so far for all argument roles that will concern us here. Therefore, I shall use traditional labels for Semantic（Thematic）Roles as familiar from the literature, and further view them as multi-factorial and, consequently, gradient concepts（cf. Palmer 1994）.
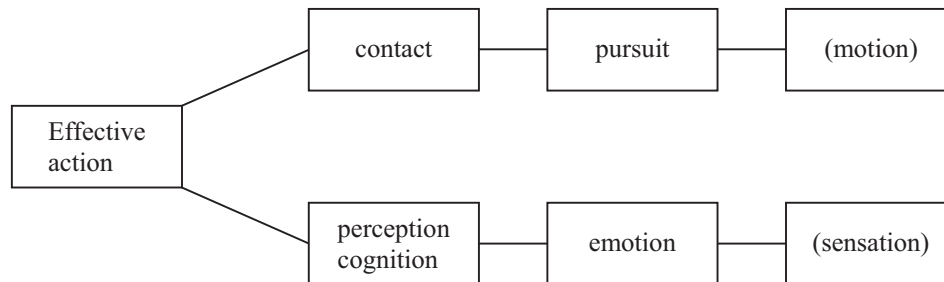
While a canonical transitive construction should conform to a certain semantic transitive prototype, no such prototype is available for an intransitive construction. In fact, the intransitive construction is rather defined in negative terms, as a clause not conforming in formal and semantic terms to the transitive prototype. However, deviations from the prototype may be numerous. To begin with a verb may have only one argument（which may additionally be more similar either to A or O）. Additionally if a verb has two arguments, O may not represent a typical（affected）Patient and A may not be a typical（controlling）Agent.

Now, it is clear from looking at Tsunoda's verb hierarchy that we are dealing with different deviations from the transitivity prototype. If we compare the canonical transitive（effective action）verbs with the pursuit type, we witness a difference in affectedness: while O is affected（undergoes some change）in the former case, it is not affected in the latter case, as an action is merely intended but not realized（cf. *wait for, search*）. In this respect, verbs of contact like *hit* are intermediate between the effective action and pursuit types, as they refer to an action that has taken place but not necessarily yielded a result（change of state of O）. Thus, one can set up a hierarchy of decreased Patienthood（affectedness of the O participant）where 'break' ranks higher than 'hit' and 'hit' ranks higher than 'search'. In other words, 'break'-verbs and 'search'-verbs differ in argument structure: the argument structure of the former is Agent-Patient, while the argument structure of the latter is Agent-Goal. Still clearer instantiations of the Goal role are objects of（two argument）motion verbs, which constitute a maximal deviation from transitivity along this dimension.

On the other hand, the difference in argument structure between canonical transitives and mental verbs such as *see* and *like* is more profound and complex, as the differences relate not only to properties of O but more importantly to properties of A as well. Indeed, also here as in the case of pursuit verbs, we are envisaging decreased patienthood on the part of O. Still more importantly, these verbs instantiate a deviation from the agentive prototype on the part of A: the A of emotional predicates is not a controlling but rather an affected participant. In other words, the argument structure of mental verbs is Experiencer-Stimulus, rather than Agent-Patient. The shift in argument structure along this dimension is also gradual, inasmuch as perception predicates like 'see' are arguably intermediate between 'break' and 'like' types. On the one hand, one can follow Kemmer（1993: 137）in her suggestion that experiencers of perception verbs are less typical than those of emotion verbs since the former are less affected. On the other hand, even though the object of perception is physically unaffected, as long as a visual image is obtained, the action can qualify as resultative and the O as more Patient-like（see Tsunoda 1981）. Finally, sensation predicates（such as *freeze, be sick*）deviate arguably even further from transitivity prototype than emotion predicates, since Experiencer is their only argument, while many emotion predicates（*like, fear*）take two argument（admittedly, the situation is less clear with predicates like *be worried, be sad*, which fall in between

two-argument and one-argument predicates）.

Let us sum up the discussion. Above I have argued that the verb type hierarchy proposed by Tsunoda conflates two different dimensions: a（sub-）hierarchy of decreased patienthood on the part of O argument（that leads from 'break' to 'go'）, and another（sub-）hierarchy that additionally involves decreased agentivity on the part of the A participant（that leads from 'break' to 'freeze'）. The new – two dimensional – hierarchy is represented below（verb types absent on Tsunoda's hierarchy are in parentheses）:

```
                         ┌─────────┐     ┌─────────┐     ┌──────────┐
                         │ contact │─────│ pursuit │─────│ (motion) │
          ┌───────────┐ ─┘         └─────┘         └─────┘          │
          │ Effective │                 
          │ action    │
          └───────────┘ ─┐ ┌────────────┐     ┌─────────┐     ┌─────────────┐
                         └─│ perception │─────│ emotion │─────│ (sensation) │
                           │ cognition  │     └─────────┘     └─────────────┘
                           └────────────┘
```

This scheme above represents a 'semantic map' inasmuch as the adjacent verb types show semantic affinities（see Haspelmath 2003 for discussion of the semantic map approach）. On the assumption of form-function iconicity, which underlies the semantic map methodology, it is expected that the map should be contiguous. That is, if two categories（here, verb types）on the map share a certain case-frame this will hold for intermediate categories as well. For example, if emotion verbs share the transitive case frame with the effective action verbs, the intermediate types – perception and cognition – should allow for the transitive pattern as well. On the other hand, inasmuch as the proposed semantic map preserves the initial insight of Tsunoda's hierarchy in being oriented from more transitive to less transitive verb types, it can also be called a two-dimensional hierarchy. As noted by Haspelmath 2003, hierarchies have more predictive power than semantic maps, since apart from predictions based on contiguity requirements, they generate predictions based on the directionality of the map: if categories lower on a hierarchy display a certain pattern（the transitive pattern, in our case）, categories higher in the hierarchy should display this pattern as well.

An important qualification is in need here, though. An implicational hierarchy dealing with semantic classes should be formulated in existential terms（for some member of the class X）rather than universal terms（for every member of the class X）; see Cristofaro （2003）for a recent discussion of 'quantified' implicational universals. That is, if some member（s）of the semantic class X displays a particular morpho-syntactic characteristic, the hierarchy would predict that some member（s）from the semantic classes higher in the hierarchy will display this characteristic as well（given, naturally, that this characteristic is associated with the high ranking in the hierarchy）. This is a common assumption in typological research dealing with semantic classes. Thus, Dixon（1977）in his well-known typological study of adjectives, formulates a generalization to the effect that if（some of the）non-basic property words（e.g. human propensity items）pattern as adjectives in a particular language,（some of the）basic property words（referring to value, size, age and colour）should do the same （while the opposite does not hold, of course; that is, languages having a closed class of adjectives may well confine this class to the basic property words）. Thus, although the verb

type hierarchy cannot predict for every lexical item which case frame it selects,[4] it can predict that if there are some verbs from a type lower in the hierarchy that take a transitive pattern there should also be found some verbs from types higher in the hierarchy that do the same.

Generally, I assume with functional linguists such as Givón, Croft, Dixon, Tsunoda, Lazard that while in all languages clauses, which conform to the transitivity prototype will receive a transitive encoding, languages will differ in the extent to which a transitive construction will be extended to other clause types departing from the transitive prototype. Such extensions can be conceived as metaphoric extensions from one semantic domain to the other, as suggested by Givón（1984）and Rice（1987）.（For example, the notion of object affectedness clearly needs reinterpretation when one shifts from a domain of physical actions to the domain of mental events.）Alternatively, it can be regarded as assimilation of minor sentence types to the major construction, as suggested by Lazard, who views the transitive clause as a major construction type for two-actant action verbs, serving as a model for other two-actant patterns（Lazard 1998: 40）. In any case a language may confine a transitive construction to some domain in the hierarchy presented above, or extend it to some further point down the hierarchy. In the next sections I present evidence for the different cut-off points for such an extension on the two-dimensional hierarchy, drawing on the data presented in Tsunoda's publications as well as in subsequent typological and descriptive studies. The data pertaining to particular sub-hierarchies will be presented separately; in §3 I present evidence for the ranking of the verb types on the sub-hierarchy leading from 'break' to 'go', while in §4 I shall present evidence for the ranking of the verb types on the sub-hierarchy leading from 'break' to 'freeze'（see Malchukov 2005; see also Beavers 2006; Malchukov & de Swart 2009, Beavers 2010; von Heusinger & Kaiser 2010 for more discussion of transitivity splits）.

3. Route 1 on the semantic map: From 'break' to 'go'

Evidence for this sub-hierarchy is easy to obtain, in fact ample evidence was provided already in Tsunoda's initial publication. Below I shall present evidence for the ranking on this（sub-）hierarchy focussing on cases where a verb type higher in the hierarchy takes the transitive case-frame, while the verb types lower in the hierarchy take the intransitive case frame.

3.1. break > hit

Most languages seem to assimilate contact verbs like *hit* and *touch* to transitives. Yet, already in European languages we can observe that 'irresultative' verbs like *hit* and *touch* may diverge from canonical transitives（the 'resultative' subtype of effective action verbs）in behaviour. As noted by Tsunoda（1981）, many of these verbs in English show an alternation between a transitive and prepositional O construction, while 'resultative' transitives do not（cf. *hit at* and **break at*; see Levin（1993: 41–43）for further discussion of the 'conative alternation'）.[5]

---

[4]　In fact, Lucassen（1985: 258）expresses doubt in feasibility of cross-linguistic generalizations about valency patterns of verb types referring to the fact that in Abkhaz 'see' is transitive while 'hear' is not.

[5]　Admittedly, not all groups of contact verbs participate in the "conative alternation": thus, while Levin's（1993）*hit*-verbs allow such alternation, *touch*-verbs do not. However, there are other syntactic characteristics that indicate

Some other languages offer more straightforward evidence for the reduced transitivity of the contact verbs. Thus, it is well-known that in many Caucasian languages "verbs of surface contact" including such items as 'hit', 'bite', 'kiss', 'pinch' take an oblique O (Klimov & Alekseev 1980: 180). Consider the following example from Chechen-Ingush (Daghestanian):

Ingush (Nichols 1994: 188)
(1)   *Da:s   woCa: b-iett*
        father-ERG son.DAT CL-beat (PRES)
        'The father beats his son'

As illustrated in (1), in Ingush contact verbs take the patient in the DAT rather than absolutive case thus deviating from the ergative pattern. Admittedly the origin of this case-marking pattern in Daghestanian languages is due to the fact that ditransitives take the notional instrument as a direct O (cf. Klimov & Alekseev 1980). This is particularly evident for Chechen-Ingush, where an example like (1) can still be interpreted as a ditransitive construction involving the understood (omitted) absolutive O *bi*: 'fist' (see Nichols 1994: 188). However, this interpretation cannot be generalized – at least in synchronic terms – to other Caucasian languages, Kartvelian and West-Caucasian where contact verbs pattern intransitively as well. Consider an example from Abkhaz (West-Caucasian):

Abkhaz (Lucassen 1985: 260)
(2)   *D-sə-sə-yL*
        3sg/AGRabs-1sg/AGRdat-beat-TAM
        'He beats me'

In Abkhaz, encoding of grammatical relations manifests itself in agreement rather than morphological case. The verb in (2) cross-references both arguments, but differs structurally from the transitive in that it involves 'absolutive' and 'dative' AGR prefixes rather than 'ergative' and 'absolutive'; also the order of AGR markers is different from the transitive pattern.

In many other languages, such as Tibetan mentioned by Tsunoda (1981), contact verbs pattern intransitively as well. In Amele, which makes a three-way distinction between transitive (with a full paradigm of object AGR), half-transitive (with a restricted AGRo), and the intransitive (lacking AGRo) verbs, includes *q-oc* 'hit' in the half-transitive class (Roberts 1987: 285). In Trumai (language isolate, South American) the verb for 'bite' takes the ABS-DAT rather than ergative pattern, just as other 'aiming verbs' (Lazard 1998: 147). A more complex case is represented by Marathi, a split ergative Indo-Aryan language. Marathi, makes no formal distinction between 'break' and 'hit' verbs in imperfective tenses, since ACC is identical to DAT. However, the difference between the two becomes obvious once one regards case marking in perfective tenses. Since Marathi is a split ergative language with an aspect-based split, in perfective tenses the direct O of 'break' verbs appears in the NOM case, while the O of 'hit' retains its case just as other indirect objects.

---

lower transitivity of contact verbs from either class, for example, neither permits the "middle alternation" (cf. *it breaks easily*, **hits easily*, **touches easily*); see (Levin 1993: 149, 155).

3.2. hit > look for

As is also clear from Tsunoda's study, some languages treat pursuit verbs as intransitives, while some other assimilate them to the transitive class. The former case can be illustrated by European languages, where many pursuit verbs take oblique （prepositional） objects; cf. English *look for*, German *warten auf* 'wait for'; see Christol 1998: 474 ff. for more examples. The latter case is attested in Japanese where all pursuit predicates are transitive:

Japanese （Jacobsen 1992: 46）
（3）　*tomodati o　　matu*
　　　friend　ACC wait
　　　'wait for a friend'
（4）　*apaato　　o　　sagasu*
　　　apartment ACC look.for
　　　'look for an apartment'

　　　Similar variation in the treatment of pursuit predicates is attested for ergative languages. While Eskimo treats pursuit verbs as transitives, for Australian languages pursuit verbs constitute a cut-off point on the transitivity hierarchy: rather than taking the transitive ERG-ABS pattern, they opt for the ERG–OBL or ABS–OBL patterns （Tsunoda 1981; cf. Blake 1977）. Consider the following example from Djaru:

Djaru （Tsunoda 1981: 407）
（5）　*Mawun-tu nga-ø-la　　　　　　jaji-wu　　　jarra nyang-an*
　　　man-ERG C-3sgAGRs-3sgAGRdat kangaroo-DAT wait-PRES
　　　'A man waits for （looks for） a kangaroo'

Note that contact verbs are treated as transitives in Djaru, indeed most Australian languages do not distinguish lexically between 'break' and 'hit' （Dixon 1980: 103）.[6]
　　　On the other hand, for Caucasian languages, where contact verbs pattern intransitively, the hierarchy predicts that （some） pursuit verbs will pattern intransitively as well. This prediction is borne out; for example, in Ingush the 'wait' predicate takes the ABS-OBL （absolutive-allative） pattern （Nichols 1994: 118）. Sometimes, pursuit verbs share the same pattern with verbs of contact. Thus, in Lezgian *QeQün* 'look for' and *galuq'un* 'hit （against）' govern the same 'postessive' case （Haspelmath 1993: 274）. And Basque, as is described by Tsunoda （1981）, uses the same ERG-DAT pattern （in alternation to the transitive） for both the pursuit and the contact type.
　　　Lazard （1998: 144） includes both verbs of pursuit and contact into his class of 'aiming' verbs denoting "actions directed towards an object but without necessarily attaining or affecting it". Note however that Lazard's notion of 'aiming verbs' extends even further to include verbs of directed perception （'look at'）, emotional attitudes （'worry about'）, and of social interaction （'help', 'speak to'）. As evidence for taking 'aiming verbs' as a natural class Lazard refers to the fact that in many Oceanic languages they constitute a group of "middle" verbs selecting an ABS–DIR frame （cf. Chung 1978: 47）.[7]

---

[6]　　Yet some of them distinguish these meanings grammatically through an antipassive alternation.

[7]　　Cf. also Blume （1997） for a comparative study of 'interaction verbs' in European and Polynesian languages.

3.3. search >> go

Most languages including the ones discussed above treat motion verbs as intransitives, although they may admit some few into the transitive class（cf. English *enter*, *leave*; see also Dixon 1991: 281 for a discussion of 'preposition omission' with motion verbs）. Admittedly, languages differ in the extent to which they extend the transitive pattern to the motion type. As compared to English, Japanese（not surprisingly, given that pursuit verbs take invariably a transitive pattern）, allows more motion verbs to appear in a transitive construction （Jacobsen 1992: 50）.

Japanese（Jacobsen 1992: 46, 32）
（6）　　*rooka o　　hasiru*
　　　　hall　ACC run
　　　　'run down the hall'

This construction however is mostly reserved to cases when the location is traversed completely and unidirectionally, elsewhere it alternates with the intransitive NOM–LOC frame:

（7）　　*rooka de　　hasiru*
　　　　hall　　LOC run
　　　　'run in the hall'

The preference of motion verbs for intransitive constructions pertains to languages of different alignment type, at least to those that have case morphology. In languages, which lack the case category, the distinction can be blurred, however. Thus, Mathews & Yip（1994: 136）note that in（Cantonese）Chinese many verbs of motion and posture（'go to', 'sit on'）that are intransitive in other languages take an O like transitive verbs.

4. Route 2 on the semantic map: From 'break' to 'freeze'

In this section I shall present evidence from typologically diverse languages for the ranking of particular verb types on the second sub-hierarchy leading from 'break' to 'freeze'.

4.1. break > see

As repeatedly noted in the typological literature, many languages – both accusative and ergative – distinguish 'affective verbs' from transitives. In some languages verbs of perception are treated as belonging to this class on a par with the verbs of cognition and emotion. Thus, in Japanese perception predicates can pattern either transitively or intransitively: the former pattern is found with verbs of attentive perception the latter with inactive perception, which take the DAT–NOM pattern:

Japanese（Jacobsen 1992: 30, 31）
（8）　　（*Watashi wa*）*kokuban　　o　　mita*
　　　　（I　　　TOP）blackboard ACC look-at-PAST
　　　　'I looked at the blackboard'

9

(9)　　（*Watashi ni*）　　*kokuban* 　*ga* 　*mieta*
　　　（I　　　　DAT）blackboard NOM see/visible-PAST
　　　'I saw the blackboard'

Not surprisingly, emotion predicates that are lower in the hierarchy also take the intransitive pattern:

Japanese（Shibatani 2001: 312）
（10）　*Mami ni*　　　（*wa*）*Hata-sensei* 　*ga* 　　*osorosii*（*sooda*）
　　　Mami DAT（TOP）Hata-professor NOM　fear（ful）
　　　'Mami is afraid of Professor Hata'

　　　Similarly, in some ergative languages verbs of perception pattern intransitively. Again Caucasian languages, which display an inverse pattern with perception predicates, can serve as an example（cf. Tsunoda 1981, Drossard 1991, Lazard 1998 for discussion and further ex-emplification）. Consider the following examples from Avar（contrasted with the transitive construction）, where cognition and perception predicates take an experiencer in the locative case, while emotion predicates take an experiencer in the dative case.

Avar（Blake 2001: 121 from Ebeling 1966）
（11）　*Inssucc-a*　　　*j-as*　　*j-e-cc-ula*
　　　（M）father-ERG F-child F-praise-PRES
　　　'The father praises the girl'
（12）　*Inssu-du*　　　*j-as*　　*j-ix-ula*
　　　（M）father-LOC F-child F-see-PRES
　　　'The father sees the girl'
（13）　*Inssu-je*　　　*j-as*　　*j-óλ'- ula*
　　　（M）father-DAT F-child F-love-PRES
　　　'The father loves the girl'

Thus, in all these languages verbs of perception share intransitive pattern with other mental verbs, although they do not necessarily display the same case-marking of arguments. A simi-lar situation obtains in many Indic and Dravidian languages, where perception predicates also take a non-canonical subject（Onishi 2001）.

4.2. see/know >> like/fear

Languages cited above do not provide evidence for the relative ranking of perception and emotion predicates, since both take an intransitive pattern. For perception verbs however it is rather an exception than the rule, since in most languages（inactive）perception verbs as 'see' and 'hear' pattern transitively（cf. Tsunoda 1981, Blake 1994: 57, Palmer 1994: 26）. This has been generally confirmed by Bossong's（1998）study of the experiencer construction in Eu-ropean languages which showed that 'see'-verbs show a strong predilection for a transitive construction with a subject experiencer, while 'like'-verbs show an equally strong predilec-tion for the 'inverse' object experiencer construction（Haspelmath 2001: 61）. The European languages from Bossong's sample are mainly nominative, but the same reference for percep-tion verbs to pattern transitively can be observed in ergative languages as well（as can be

readily seen from the table in Tsunoda 1981). Thus, Tsunoda notes that 'see' is used as an exemplary transitive predicate in many descriptions of Australian languages, while emotion predicates often select for some other case-frame, typically ABS-OBL like in Djaru:

Djaru (Tsunoda 1981: 407)
(14) *Ngali   nga-li-nyanta   minyirri ngumpirr-a*
      we.ABS C-1duS-3sgLOC shy.ABS woman-LOC
      'We are shy of the woman'

Also 'split intransitive' (or split-S) languages, which consistently differentiate between agentive and patientive subjects, are instructive in that respect. It seems that few of these languages treat 'see'-verbs as having a patientive subject, as is the case in Oneida which groups 'see' together with 'like' and 'sick'. Most split-S languages, however, assimilate 'see' to semantic transitives with agentive subjects and patientive objects. Thus, Ika treats 'see' as agentive, while 'know', 'afraid' and 'tired' are non-agentive. Similarly, in Guarani 'see' is transitive, while emotion verbs take a patientive subject. The same holds for Acehnese, where 'see' is cross-referenced as an agentive subject verb and needs to take a special detransitivizing marker (the 'accidental action' prefix *teu-*) in order to shift to the patientive subject class (Durie 1985: 60).

4.3. like/fear >> freeze/be cold

Tsunoda does not include sensation predicates into his classification, apparently because his hierarchy is concerned with two place verbs, while sensation predicates are predominantly one place. Still there is a class of emotion predicates like 'be sad' which seem to be similar in terms of the number of valencies to sensation predicates like 'be cold' (see Kemmer 1993: 128 ff. on the distinction between two-participant and one-participant mental events). Thus, Onishi (2001) assigns both groups into the same class of "one- or two-place verbs with affected S/A". Interestingly, even within this class sensations sometimes pattern differently from verbs of emotion. Consider the case from Quechua, where sensation predicates take the Subject in the ACC case:

Quechua (Hermon 2001: 151)
(15) *ñuka-ta chiri-wa-rki-mi*
      me-ACC cold-AGRo.1sg-PAST3-IF
      'I was cold'
(16) *ñuka-ta-ka   uma-ta   nana-wa-n-mi*
      me-ACC-TOP head-ACC hurt-AGRo.1sg - PRES3-IF
      'My head hurts me'

As noted by Hermon (2001: 151–152) other mental verbs including those of emotion display the canonical pattern with the nominative experiencer (with the exception of *muna-* 'want' that takes the accusative subject). In Tariana (Amazonian) there is a small class of verbs (S$_{io}$ verbs in Aikhenvald's (2001) classification) that takes the S in the objective case, rather than in the unmarked case (Aikhenvald 2001). As noted by Aikhenvald (2001: 180), this class mostly includes predicates of physical state. In Amele (Papuan) sensation predicates pattern as impersonal constructions with object-experiencers. As noted by Roberts

(1987: 316), the majority of impersonal constructions are used to refer to a physiological state ('tired', 'itchy', 'cold', 'hurt', 'breathless'), although some few refer to emotional states ('sorry', 'willing') and one verb – to the mental state ('aware/understand').[8]

5.　Conclusions and open questions

Above I noted that the verb type hierarchy proposed by Tsunoda conflates several semantic dimensions.[9] Once these dimensions are disentangled into separate sub-hierarchies we find how exceptions to the hierarchy mentioned in §1 fall into place. Note that all these exceptions concern the relative ranking of the pursuit predicates vis-à-vis mental verbs. As argued above, pursuit type cannot be reasonably ranked with respect to mental verbs since the two types display a deviation from a transitivity prototype in a different way; in particular, only the latter hierarchy involves a decrease of agentivity of the A participant. With these amendments, the two-dimensional hierarchy can be set up as a universal hierarchy having predictive power. If some (some members of) the verb types lower in the hierarchy display the transitive pattern, (some members from) the verb types higher in the hierarchy will do so as well.

As a further illustration of independence of the sub-hierarchies on the two-dimensional map consider extensions of transitivity along the hierarchy in English and Japanese. If one operates in terms of a one-dimensional hierarchy it hardly makes sense to ask which of the languages is "more transitive", that is more liberal in extension of the transitive pattern. However, such a comparison makes perfect sense in terms of a two-dimensional hierarchy. Indeed, Japanese is more permissive in extension of the transitive pattern along the first sub-hierarchy: as noted above it treats pursuit predicates (and even many motion verbs) as transitive. On the other hand, English is more liberal than Japanese in extending of the transitive pattern along the second sub-hierarchy as it assimilates mental verbs to the transitive pattern. This is consistent with Jacobsen's (1992) conclusion that English (unlike Japanese) downplays the distinction between the verb types in agentivity/volitionality, while Japanese (unlike English) does not make a consistent distinction between intended (potentially resultative) and accomplished (actually resultative) actions.[10]

It is clear that the present paper leaves a number of issues open. First, while the verb type hierarchy (whether one-dimensional or two-dimensional) predicts that the verb types down the hierarchy can switch from the transitive to intransitive pattern (or a verb class in

---

[8]　Another instructive example comes from Malayalam. As noted by Jayaseelan (2004: 230), while mental psych-verbs allow for both NOM and DAT subjects, physical sensations take only the latter. Interestingly if a verb referring to a physical sensation (e.g. *vedaNicc-* 'feel pain') exceptionally takes a NOM subject it is interpreted as (metaphorically) referring to mental suffering.

[9]　The same conflation is found in the typology of verb types proposed by Onishi (2001), where mental predicates and pursuit/interaction verbs are treated as subclasses of the same group (Class II in his classification: 'two place verbs with less agentive A and less affected O'). More generally, it is doubtful if a one-dimensional universal hierarchy of semantic (thematic) relations can be constructed. Indeed, Experiencer and Instrument are opposed to Agent along different dimensions (the former characterized as affected, the latter lacking the agent's sentience) and thus cannot be ranked in relation to each other on a principled basis.

[10]　Further, as noted by Jacobsen (1992: 47), Japanese is also more restrictive than English in extending a transitive pattern to verb types involving a symmetrical relation between the participants ('marry', 'resemble'). This is still another dimension of the transitivity hierarchy, which will not be addressed here (but see a brief discussion in §5 of Malchukov 2005).

question will be split between the two patterns）, this approach does not predict which pattern would be used. Yet, as discussed in Malchukov（2005）, there are certain regularities in that domain. To give one example: the verbs of the active perception（of the 'look'-type）, when pattern intransitively usually select a NOM-OBL pattern（or an ABS-OBL pattern in an ergative language）, but not the "inverse"（DAT-NOM, or DAT-ABS pattern）, while inactive perception verbs（the 'see'-type）often opt for the latter pattern（Tsunoda 1981; Primus 1999; Malchukov 2005）. In Malchukov（2005）, I outlined an approach coached in Optimality Theory, which allows to make predictions concerning the preferred case frames for verb types on Tsunoda's hierarchy on the basis of few functional constraints（Role Faithfulness, Distinguishability, Economy）; see also Malchukov & de Swart 2009, Beavers 2010; von Heusinger & Kaiser 2010 for a follow up discussion.

Another open question, concerns the level of granularity of particular verb classes on the verb hierarchy. It is clear that many of the verb classes on the hierarchy allow for further decomposition（e.g., verbs of pursuit correspond to several subclasses in the more fine-grained classifications such as Levin's 1993 well known study of English verb classes）. Constructing a richer semantic map incorporating more semantic classes is an outstanding question which needs collaborative efforts on the part of typologists and descriptive linguists specializing in particular languages. This is a topic of the current project on the typology of valency classes currently conducted at Max Planck Institute for Evolutionary Anthropology in Leipzig（see http://www.eva.mpg.de/lingua/staff/malchukov.php for the project description）, which brings together the tradition of the study of transitivity splits pioneered by Tasaku Tsunoda（1981; 1985）with another influential research tradition aiming at the fine-grained verb taxonomies, associated with the work of Beth Levin（1993）and her followers.

References

Aikhenvald, Alexandra Y.（2001）Verb types, non-canonically marked arguments and grammatical relations: A Tariana perspective. In: Aikhenvald et al.（eds.）, 177–200.

Aikhenvald, Alexandra Y., R.W.M. Dixon and Masayuki Onishi（eds.）（2001）*Non-canonical marking of subjects and objects*.（Typological studies in languages, 46）. Amsterdam: Benjamins.

Aissen, Judith（2003）Differential object marking: Iconicity vs. economy. *Natural Language and Linguistic Theory* 21: 435–483.

Asher, R.E.（1985）*Tamil*. London: Croom Helm.

Beavers, John（2006）Argument/oblique alternations and the structure of lexical meaning. Ph.D. thesis, Stanford University.

Beavers, John（2010 to appear）On affectedness. *Natural Language and Linguistic Theory*.

Blake, Barry J.（1977）*Case marking in Australian languages*.（Linguistic Series, 23）. Canberra: Australian Institute of Aboriginal Studies.

Blake, Barry J.（1994）*Case*. Cambridge: Cambridge University Press.

Blake, Barry J.（2001）*Case*. Second edition. Cambridge: Cambridge University Press.

Blume, Kerstin（1997）A contrastive analysis of interaction verbs with dative complements. *Linguistics* 36（2）: 253–280.

Bossong, George（1998）Le marquage différentiel de l'objet dans les langues d'Europe. In: Jack Feuillet（ed.）, 259–294.

Christol, Alain（1998）Marquage oblique des actants. In: Jack Feuillet（ed.）, 457–523.

Chung, Sandra（1978）*Case marking and grammatical relations in Polynesian*. Austin: University of Texas Press.

Comrie, Bernard（1989）*Language universals and linguistic typology*. Second edition. Chicago: University of Chicago Press.

Cristofaro, Sonia（2003）*Subordination*. Oxford: Oxford University Press.

Croft, William（1991）*Syntactic categories and grammatical relations: The cognitive organization of information*.

Chicago: University of Chicago Press.

Croft, William（1998）Event structure in argument linking. In: Miriam Butt and Wilhelm Geuder（eds.）*The projection of arguments*, 21–65. Stanford: CLSI Publications.

Dixon, R.M.W.（1977）Where have all the adjectives gone? *Studies in Language* 1: 19–80.

Dixon, R.M.W.（1980）*The languages of Australia*. Cambridge: Cambridge University Press.

Dixon, R.M.W.（1991）*A new approach to English grammar, on semantic principles*. Oxford: Clarendon Press.

Dixon, R.M.W.（1994）*Ergativity*. Cambridge: Cambridge University Press.

Dowty, David R.（1991）Thematic proto-roles and argument selection. *Language* 67: 547–619.

Drossard, Werner（1991）Verbklassen. In: Hansjakob Seiler and Waldfried Premper（eds.）, 150–182.

Durie, Mark（1985）*A grammar of Acehnese on the basis of a dialect of north Aceh*. Dordrecht: Foris.

Ebeling, Carl L.（1966）Review of Chikobava and Cercvadze's "The grammar of literary Avar". *Studia Caucasica* 2: 58–100.

Feuillet, Jack（ed.）（1998）*Actance et valence dans le langues de l'Europe*. Berlin: Mouton de Gruyter.

Givón, Talmy（1984）*Syntax: A functional-typological introduction*. Vol.1. Amsterdam: Benjamins.

Givón, Talmy（1985）Ergative morphology and transitivity gradients in Newari. In: Frans Plank（ed.）*Relational typology*, 89–107. Berlin: Mouton.

Grimshaw, Jane（1990）*Argument structure*. Cambridge MA: MIT Press.

Haspelmath, Martin（1993）*A grammar of Lezgian*. Berlin: Mouton.

Haspelmath, Martin（2001）Non-canonical marking of core arguments in European languages. In: Aikhenvald et al.（eds.）, 53–84.

Haspelmath, Martin（2003）The geometry of grammatical meaning: Semantic maps and cross-linguistic comparison. In: Michael Tomasello（ed.）*The new psychology of language*, Vol. 2, 211–243. New York: Lawrence Erlbaum Associates Publishers.

Hermon, Gabriella（2001）Non-canonically marked A/S in Imbabura Quechua. In: Aikhenvald et al.（eds.）, 149–176.

Von Heusinger, Klaus and Georg A. Kaiser（2010 to appear）Affectedness and differential object marking in Spanish. *Morphology*.

de Hoop, Helen and Andrej L. Malchukov（2008）Case-marking strategies. *Linguistic Inquiry* 39: 565–587.

de Hoop, Helen and Peter de Swart（eds.）（2008）*Differential subject marking*. Dordrecht: Springer.

Hewitt, George B.（1979）*Abkhaz*.（Lingua Descriptive Studies, vol.2）. Amsterdam: North Holland.

Hopper, Paul J. and Sandra A. Thompson（1980）Transitivity in grammar and discourse. *Language* 56: 251–299.

Jacobsen, Wesley M.（1992）*The transitive structure of events in Japanese*. Tokyo: Kurosio Publishers.

Jayaseelan, K.A.（2004）The possessor-experiencer dative in Malayalam. In: Peri Bhaskararao and Karumuri Venkata Subbarao（eds.）*Non-nominative subjects*. Vol. 1（Typological studies in language, 60）, 227–244. Amsterdam: Benjamins.

Kemmer, Suzanne（1993）*The middle voice*.（Typological studies in language, 23）. Amsterdam: Benjamins.

Kibrik, A. E.（1985）Toward a typology of ergativity. In: Johanna Nichols and Anthony Woodbury（eds.）*Grammar inside and outside the clause*, 268–324. Cambridge: Cambridge University Press.

Kimball, Geoffrey D.（1991）*Koasati Grammar*. University of Nebraska Press.

Klimov, Georgij A. and Mikhail E. Alekseev（1980）*Tipologija kavkazskix jazykov*. Moskva: Nauka.

Lazard, Gilbert（1998）*Actancy*. Berlin: Mouton.

Lehmann, Christian（1991）Predicate classes and PARTICIPATION. In: Hansjakob Seiler and Waldfried Premper（eds.）, 183–239.

Levin, Beth（1993）*English verb classes and alternations*. Chicago: University of Chicago Press.

Lucassen, Wim（1985）On the verbal structure of Abkhaz. In: Frans Plank（ed.）*Relational typology*, 257–267. Berlin: Mouton.

Malchukov, Andrej L.（2005）Case pattern splits, verb types and construction competition. In: Mengistu Amberber and Helen de Hoop（eds.）*Competition and variation in natural languages:The case for case*, 73–117. London & New York: Elsevier.

Malchukov, Andrej L.（2006）Transitivity parameters and transitivity alternations: Constraining co-variation. In: Leonid Kulikov, Andrej Malchukov and Peter de Swart（eds.）*Case, valency and transitivity*, 329–359. John Benjamins.

Malchukov, Andrej and Peter de Swart（2009）Differential case marking and actancy variation. In: Andrej Malchukov and Andrew Spencer（eds.）*The Oxford handbook of case*, 339–356. Oxford: Oxford University Press.

Mallinson, Graham and Barry Blake（1981）*Language typology: Cross-linguistic studies in syntax*. Amsterdam: North Holland.

Mathews, Stephen and Virginia Yip（1994）*Cantonese: A comprehensive grammar*. London: Routledge.

Mithun, Marianne（1991）Active/agentive case marking and its motivations. *Language* 67: 510–546.

Mithun, Marianne（1999）*The languages of native North America*. Cambridge: Cambridge University Press.

Nichols, Johanna（1994）Ingush. In: Rieks Smeets（ed.）*North East Caucasian languages*. Vol. 2, 79–147. New York: Caravan Books.

Onishi, Masayuki（2001）Introduction: Non-canonically marked subjects and objects: Parameters and properties. In: Aikhenvald et al.（eds.）, 1–52.

Palmer, Frank R.（1994）*Grammatical roles and relations. Cambridge*: Cambridge University Press.

Primus, Beatrice（1999）*Cases and thematic roles*. Tubingen: Niemeyer.

Rappaport Hovav, Malka and Beth Levin（1998）Building verb meaning. In: Miriam Butt and Wilhelm Geuder（eds.）*The projection of arguments*, 97–134. Stanford: CSLI Publications.

Rice, Sally（1987）*Towards a cognitive model of transitivity*. Ph.D. thesis, University of California.

Roberts, John（1987）*Amele*. London: Croom Helm.

Rozwadowska, B.（1988）Thematic restrictions on derived nominals. In: Wendy Wilkins（ed.）*Thematic relations*.（Syntax and Semantics 21）, 147–165. San Diego: Academic Press.

Seiler, Hansjakob and Waldfried Premper（eds.）（1991）*Partizipation: Das sprachliche Erfassen von Sachverhalten*. Tübingen: Narr.

Shibatani, Masayoshi（2001）Non-canonical constructions in Japanese. In: Aikhenvald et al.（eds.）, 307–354.

Song, Jae Jung（2001）*Linguistic typology: Morphology and syntax*. London: Longman.

Tsunoda, Tasaku（1981）Split case-marking in verb types and tense/aspect/mood. *Linguistics* 19: 389–438.

Tsunoda, Tasaku（1985）Remarks on transitivity. *Journal of Linguistics* 21, 385–396.

van Valin, Robert and Randy Lapolla（1997）*Syntax: Structure, meaning and function*. Cambridge: Cambridge University Press.

Wunderlich, Dieter（1997）Cause and the structure of verbs. *Linguistic Inquiry* 28: 27–68.

Andrej L. Malchukov
Invited Professor at NINJAL（January 2010–June 2010）
Present Positions:
 -Leading Senior Researcher（veduschij nauchnyj sotrudnik）at Institute for Linguistic Studies（Russian Academy of Sciences）, St.-Petersburg（since 2007）
 -affiliated researcher at Max Planck Institute for Evolutionary Anthropology, Leipzig（since 2006）
University Education:
 1990　Ph.D.　　　　Institute of Linguistics（Russian Academy of Sciences）
 2002　Habilschrift　Institute of Linguistics（Russian Academy of Sciences）
Major Publications:
 1995　*Even*.（Languages of the World/Materials, Vol. 12）. München: LINCOM EUROPA.
 2004　*Nominalization/verbalization: Constraining a typology of transcategorial operations*. München: LINCOM EUROPA.
 2006　with Leonid Kulikov and Peter de Swart（eds.）*Case, valency and transitivity*. Amsterdam: Benjamins.
 2008　*Sintaksis evenskogo jazyka: Semanticheskie, strukturnye, kommunikativnye aspect*［Syntax of Even: Functional, structural, discourse aspects］. St-Petersburg: Nauka.
 2009　with Lotte Hogeweg and Helen de Hoop（eds.）*Cross-linguistic semantics of tense, aspect and modality*. Amsterdam: Benjamins.
 2009　with Andrew Spencer（eds.）*The Oxford handbook of case*. Oxford: Oxford University Press.
 2010 in print　　with Martin Haspelmath and Bernard Comrie（eds.）*Studies in ditransitive constructions: A comparative handbook*. Mouton de Gruyter.