Ditransitive constructions: a typological overview

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Contents

1. A definition of *ditransitive construction*

A ditransitive construction is defined here as a construction consisting of a (ditransitive) verb, an agent argument (A), a recipient-like argument (R), and a theme argument (T). Typical ditransitive constructions are shown in (1a-c).

(1) a. English
Mary gave John a pen.
A R T

b. Modern Greek

O	*Pétr-os*	*éstile*	*tis*	*María-s*	*ta*	*xrímata.*
the.NOM	Petros-NOM	sent	the.GEN	Maria-GEN	the.ACC	money.ACC
A			R	T		

'Petros sent Maria the money.'

c. Huichol (Comrie 1982:108)

Nee	*tumiini*	*uukari*	*ne-wa-ruzeiyastïa.*
I	money	girls	1SG.SBJ-3PL.OBJ-show
A	T	R	

'I showed the money to the girls.'

This definition thus makes crucial reference to the meaning of the construction, while the formal manifestation of the arguments is irrrelevant. This is the only way to formulate a cross-linguistically applicable definition, because formal properties of languages are too heterogeneous to serve as a basis for a definition. Ditransitive constructions are the most typical three-argument constructions, just as (mono-) transitive constructions are the most typical two-argument constructions. Other three-argument constructions in which the two non-agent arguments are not R and T (e.g. *I put the pen in the box; They accused me of the crime; They replaced the worker by a robot; They called her Vera*) are not ditransitive constructions and are not considered here.

The most typical ditransitive constructions contain a verb of physical transfer such as 'give', 'lend', 'hand', 'sell', 'return', describing a scene in which an agent participant causes an object to pass into the possession of an animate receiver (= recipient). It appears that in most languages, some verbs denoting a mental transfer such as 'show' or 'tell' behave in a very similar way, which leads us to include these verbs in our definition of *ditransitive* as well. The animate argument of 'show' and 'tell' is not a recipient in the narrow sense, but we also regard it as an R-argument (i.e. a recipient-like argument). Likewise, we include less central transfer verbs such as 'offer', 'bequeath' and 'promise'.

All languages have far fewer ditransitive verbs than transitive verbs, and the ditransitive verbs of a language do not necessarily behave uniformly. While all languages have a substantial class of transitive verbs (at least several dozen) that behave uniformly, some languages only have a handful of ditransitive verbs, and not uncommonly these do not behave alike. Thus, we will not assume that there is necessarily a single major ditransitive construction in a language.

A closely related construction type is the **benefactive construction**, which in many languages is expressed like the ditransitive construction (cf. Kittilä 2005). In

some cases, it is not even clear whether we are dealing with a transfer situation (i.e. a ditransitive) or a benefactive situation (e.g. *She brought me a coffee*, which can be paraphrased as *She brought a coffee to me* or *She brought a coffee for me*). The key difference between benefactives and ditransitives is that beneficiaries may also occur with intransitive verbs (as in *She sang for me*). So while noting that benefactives and ditransitives are often similar, we do not subsume the former under the latter.

Another way in which the term *ditransitive* is sometimes extended is by including **derived ditransitives** such as **causatives** and **applicatives**. In causative constructions, the causee often behaves like an R of ditransitive constructions, and the applicative object is often a beneficiary. The argument configuration of both causatives (of transitive verbs) and applicatives (of transitive verbs) is often very similar to that of ditransitive verbs. This is of course not an accident, because the meanings of transfer verbs contain a 'cause' element: 'Give' can be paraphrased as 'cause to have'. However, in this overview we will mostly limit ourselves to constructions with underived ditransitive verbs, and when we say simply *ditransitive*, we do not include derived ditransitives.

2. Basic alignment types

The most salient way in which the encoding of transitive and ditransitive constructions differs across languages is captured by the notion of **alignment**. Alignment refers to the comparison of the properties of arguments across constructions. Monotransitive constructions (with an agent or agent-like argument A and a patient or patient-like argument P) are usually compared to intransitive constructions (with a single argument S), and in this way one arrives at the classification into three major alignment types: accusative alignment (A = S P), ergative alignment (A S = P), and neutral alignment (A = S = P). Since the 1980s, several authors (Comrie 1982; Blansitt 1984; Dryer 1986; Croft 1990; Siewierska 2003; and Haspelmath 2005a,b) have extended this approach to the study of ditransitive constructions. The following basic alignment types of ditransitive constructions are distinguished in terms of the encoding of T (theme) and R (recipient) compared to the monotransitive P (patient):

(i) Indirect object alignment, or **indirective alignment**: The R is treated differently from the P and the T (T = P R). Such constructions are also called "dative constructions", or "indirect object constructions".[1] An example comes from German, which has Dative case on the R and Accusative case on the P and the T.

(2) German

a. (monotransitive)	*Ich*	*aß*	*den*	*Apfel.*
	I.NOM	ate	the.ACC	apple
	'I ate the apple.'			

[1] However, the term *indirect object* is also sometimes used in a notional sense, to refer to what we call R (the recipient, or recipient-like argument). Thus, in English *Mary gave John a pen*, *John* is sometimes called the "indirect object". Note that our use of *indirect object* is close to the original one: In French grammar since the 18th century, the prepositional object introduced by *à* (e.g. *Marie a donné une plume à Jean* 'Mary gave a pen to John') has been called *complément d'objet indirect*, because the object is introduced by a preposition (as opposed to the *direct object*, which bears no marker).

b. (ditransitive) *Ich gab dem Kind den Apfel.*
I.NOM gave the.DAT child the.ACC apple
'I gave the child the apple.'

(ii) Secondary object alignment, or **secundative alignment**: The T is treated differently from the P and the R (T P = R). Such constructions are also called *primary object constructions*. This type is illustrated by West Greenlandic, which has Instrumental case on the T, and Absolutive case on the R and the P.

(3) West Greenlandic (Fortescue 1984: 193, 88)
a. (monotransitive) *Piita-p takurnarta.q tuqup-paa?*
Peter-ERG.SG stranger.ABS.SG kill-INT.3s->3s
'Did Peter kill the stranger?'

b. (ditransitive) *(Uuma) Niisi aningaasa-nik tuni-vaa.*
(that.ERG) Nisi money-INSTR.PL give-IND.3SG->3SG
'He gave Nisi money.'

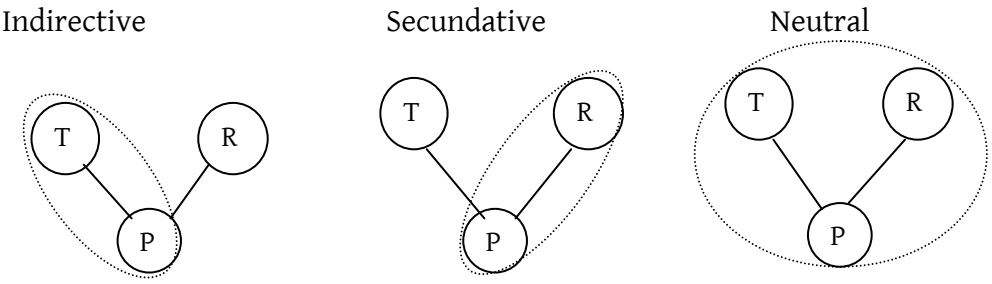
(iii) **Neutral alignment**: The P, the R and the T are encoded in the same way (T = P = R). Such constructions are also often called *double object constructions*.[2] An example comes from Dagaare (Gur; Ghana), and of course the English translations of (2b), (3b) and (4b) also exemplify this type.

(4) Dagaare (Bodomo 1997: 41-42)
a. (monotransitive) *O na ngmɛ ma la.*
he FUT beat me FACTUAL
'He will beat me.'

b. (ditransitive) *O ko ma la a gane.*
he give.PERF me FACTUAL DEF book
'He gave me the book.'

A schematic representation of these alignment types is given in Figure 1 (cf. Croft 2003; Siewierska 2004; and Haspelmath 2005a,b; Dryer 2007+):

Fig. 1. Ditransitive alignment maps

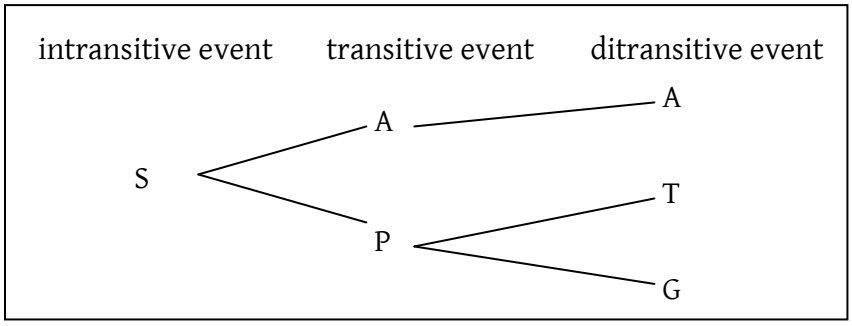


[2] Confusingly, some authors use the term *ditransitive construction* in the same sense as *double-object construction* or *neutral alignment* (e.g. Kittilä 2006). This usage is found especially in English linguistics, where some authors contrast the "prepositional construction" (*Mary gave a pen to John*) with the "ditransitive construction" (*Mary gave John a pen*) (e.g. Goldberg 1995).

These three patterns are predicted to be the most frequent types as they comply with the functional principles of economy and distinguishability which apply to case marking in general. The indirective and secundative patterns are both economical in that they have at most two markers but still satisfy distinguishability between the R and T arguments. The neutral pattern is most economical because it needs no marker, and it is possible because distinguishability can also be ensured by other clues such as word order.

Croft (2001:147) proposes the semantic map in Figure 2 for the encoding of core arguments, which unifies both transitive and ditransitive construction in a single conceptual space. (Croft uses "G" for our R.)

Fig. 2. Croft's conceptual space for core arguments (participant roles).



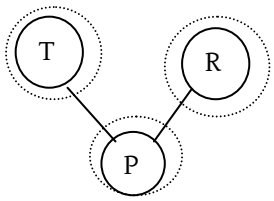
Given standard assumptions about well-formedness of semantic maps (in particular, the contiguity requirement), this semantic map correctly predicts the marginality of alignment types which would display discontinuous segments on the map (such as the semantically anomalous S A=P pattern). All types that are representable by contiguous sections on the map are robustly attested (cf. Dryer 2007+): Accusative-indirective (A = S P = T R; e.g. German), accusative-secundative (A = S P = R T; e.g. Huichol), ergative-indirective (A S = P = T R; e.g. Lezgian), and ergative-secundative (A S = P = R T; e.g. West Greenlandic).

There are two further patterns that are logically possible: The **tripartite alignment** pattern, in which T and R differ from the P and from each other, and the **horizontal alignment** pattern, in which T and R are coded in the same way, but differently from the P. Tripartite alignment is not economical and hence rare (an example from Kayardild is given in (26)). Horizontal alignment is uneconomical and fails to distinguish precisely the two roles that need to be distinguished, and thus it is even rarer than tripartite alignment (it is absent in Siewierska 2004 and Haspelmath 2005a,b). In fact, we do not know a single clear case of horizontal alignment.[3]

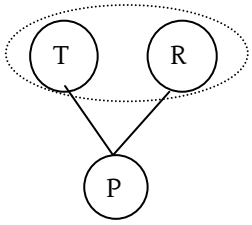
[3] A peculiar case that resembles hoizontal alignment is found in !Xun (Khoisan; König & Heine 2007+), where both T (in a secundative pattern) and R (in an indirective pattern) may be introduced by the same preposition *kē*, while P is not marked by this preposion. However, T and R are never simultaneously marked in this way.

Fig 3. More alignment maps:

Tripartite:



Horizontal:



3. Coding properties of ditransitive constructions

3.1. Alignment in flagging, indexing, and word order

Although alignment types are often associated with entire languages (as when we say that "Tsez is an ergative language"), they in fact apply to particular constructions. The most salient constructions are case or adpositional marking (or **flagging**, to use a more general term) and person(-number) cross-referencing or agreement (or **indexing**, to use a more general term). The examples seen so far show different alignment types in flagging, but they can also be seen in indexing. Thus, Tzutujil shows ergative alignment in monotransitive indexing, and indirective alignment in ditransitive indexing (the P and the T are indexed in the same way, as opposed to the R, which is not indexed at all).

(5) Tzutujil (Dayley 1985: 63, 156)

a. *x-at-wari*
CPL-2SG.ABS-sleep
'you slept'

b. *x-at-kee-ch'ey*
CPL-2SG.ABS-3PL.ERG-hit
'they hit you'

c. *N-Ø-kee-ya7* *paq* *cha-qe.*
INCPL-3SG.ABS-3PL.ERG-give money to-1PL
'They will give money to us.'

Flagging and indexing together with **word order** are generally seen as the primary means of **argument encoding**. In flagging and indexing constructions, an alignment type can always be identified, while in word order, this is typically problematic. One might be tempted to say that the word order alignment of the English Double-Object Construction (*Mary gave John a pen*) is secundative, because the R behaves like the monotransitive P (*Mary kissed John*) in that it is immediately postverbal. However, one might also say that the alignment is indirective because both the T and the P are in the final position.[4] Thus, the ordering of T and R with

[4] This view receives support from some facts about the placement of particles. According to Hudson (1992:259), only the T can follow the particle with the ditransitive verb *send out*, just like the P. The R cannot follow the verb:

respect to the verb gives rise to a clear alignment pattern only if the T and the R are on different sides of the verb. An example of such a language is cited by Blansitt (1984:138):

(6) Tarahumara (Blansitt 1984:138)
a. A-P-V
Siríame muní go'áre.
chief beans ate
'The chief ate beans.'

b. A-T-V-R
Siríame muní áre mukí.
chief beans gave woman
'The chief gave the woman beans.'

Thus, we can assess the alignment type for each coding pattern separately, and the coding patterns are logically independent of each other, so that the possibility of mismatches arises. And indeed, such mismatches are not uncommon. We may refer to them as **mixed alignment.** For example, one can find languages where flagging is indirective, while indexing is secundative. Consider example (7) from Amharic, where R is introduced by the dative prefix (indicating indirective alignment of flagging), yet R rather than T controls suffixal person-number indexing on the verb:

(7) Amharic (Amberber 2007+)
ləmma lə-lɨǰ-u mәs'haf sәt't'-ә-(w).
Lemma to-child-DEF book give.PF-3M-3MO
'Lemma gave the book to the child.'

Such cases are apparently infrequent, but the combination of secundative indexing with neutral flagging is rather common, as illustrated in (8) for Manam (Oceanic; Papua New Guinea):

(8) Manam (Lichtenberk 1983:159)
tanépwa bóro téʔe-Ø dí-an-i.
chief pig one-3SG.ADN 3PL.RL-give-3SG.OBJ
'They gave one pig to the chief.'

Importantly, there is a certain pattern of alignment mismatches. Generally, in the case of mismatches, indexing is secundative while flagging is indirective, rather than the other way around (Haspelmath 2005b; Siewierska 2003). The usual explanation for this correlation proposed in the literature (Dryer 1986: 841; Siewierska 2004:137) is that case and adpositional marking is more sensitive to role properties, while cross-referencing and agreement is more sensitive to inherent prominence (animacy, definiteness). Note that on the first count P is more similar to

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(i) a. *The secretary sent out a schedule.*
b. *The secretary sent the stockholders out a schedule.*
c. **The secretary sent out the stockholders a schedule.*

T (both can be construed as undergoers), while on the second count P is more similar to R (both can be animate, while T is normally inanimate).

In addition to argument encoding constructions, there are a fair number of other constructions for which alignment patterns can be established. Constructions such as passivization, relativization, and nominalization may treat the R, the T, or both in the same way as the monotransitive P. It is customary to contrast **(en)coding patterns** (flagging, indexing, ordering) with **behavioral patterns** of this kind. Behavioral patterns will be discussed further in §4 below.

3.2. Encoding strategies

3.2.1. Alignment types vs. encoding strategies

The alignment types that we have distinguished are highly abstract concepts and correspond to fairly diverse encoding patterns. Languages may have several quite distinct patterns that fall under the same alignment type. For instance, Tsez uses the Lative case with 'give' (also the Poss-lative case, for temporary transfer of ownership), the Poss-essive case with 'tell', and the Super-lative with 'write' (Rajabov 1999: 55–57). Itelmen (Chukotoko-Kamtchatkan; Russian Far East) also shows two indirective ditransitive patterns, but with respect to indexing rather than flagging:

(9) Itelmen (Georg & Volodin 1999: 78; 77)
a. *Neʔn* *babu-nke* *ən'ç-eʔn* *t-ənkl̩-aḷ-çeʔn.*
now grandmother-DAT fish-PL 1SG-send-FUT-3PL.T
'Now I will send fish to the grandmother.'

b. *T'sal-aj* *heni-s-kinen:* *zaq* *salke* *əḷçku-ka-q!*
fox-PEJ say-PRS-3SG.A>3SG.OBL PROH around look-KKM-NEG
'The fox said to him: don't have a look-around!'

In the construction in (9a), the R is in the dative, and the object person-number marker indexes the T. The construction in (9b) is also indirective both in case-marking and in indexing, but in a different way: It uses special dative person-number markers for the R. Thus, this pattern involves a dedicated "dative" indexing in the absence of P/T indexing, which seems to be quite exceptional cross-linguistically[5] (it is unattested in Haspelmath's (2005b) sample).

In their recent cross-linguistic study on the cross-linguistic expression of three-participant events, Margetts & Austin (2007:402-403), distinguish between the following types of strategies:

(i) three-place predicate (direct-argument) strategy
(ii) oblique strategies
  (ii a) R-type oblique
  (ii b) T-type oblique
(iii) serial verb strategy
(iv) incorporation strategy
(v) adnominal strategy

[5] The opposite case of a dedicated T-marking is found in Shimaore, mentioned by Creissels (2006: 61).

(vi) directional strategy
(vii) absorption strategy[6]

Their classification bears some obvious resemblances to our classification in terms of alignment, in that the two oblique types correspond fairly directly to the indirective and secundative flagging types. And judging from their examples, their three-place predicate strategy corresponds to our neutral alignment pattern. However, it is defined in such a way that it would also include indirective constructions in which a dative case is used to encode the R (such as (2b) from German) (in their terms, the notion of a three-place predicate is limited to predicates with "direct arguments", i.e. arguments with no marking or nominative, accusative, absolutive, ergative, or dative marking). Similarly, Faltz (1978) distinguished between a "double-object" type (as in *Mary gave John a pen*), an "oblique type" (as in 10), and a "dative type" (as in 11).

(10) Tamazight
L-ša *urgaz* *lešθaβ* *i* *θməṭṭuṭṭ.*
3SG.M-give man book to woman
'The man gave the book to the woman.'

(11) Japanese
Otoko *ga* *hon* *o* *onna* *ni* *age-ta.*
man NOM book ACC woman DAT give-PRET
'The man gave the book to the woman.'

The problem with this approach is that it assumes that a notion like "dative" can be defined cross-linguistically. But if *dative* is defined as the marker for the recipient of 'give', then of course the Tamazight marker *i* or the English preposition *to* would also count as dative markers, and there could be no R-type oblique strategy.[7] Our classification of alignment types has the advantage of not presupposing that a notion such as "dative" or "direct argument" is cross-linguistically applicable.

Thus, we would prefer to say that ditransitive constructions are typically encoded by argument flagging (case and adpositional marking), argument indexing (about which Margetts & Austin say nothing, as if it were irrelevant to encoding), and word order, and that these three encoding types can appear with different kinds of alignment. However, Margetts & Austin are right to point out that in addition to these three major means for argument encoding, there are also some minor strategies, and it is these that we now turn to.

The discussion of the directional and incorporating strategies will be postponed to a later section (the former is briefly mentioned in §3.6, where Saliba is discussed). Both strategies are basically indirective in alignment: incorporation targets the P and T arguments, while directional markers obviate the explicit use of a noun

[6] 'Absorption strategy' where the verb takes two arguments, but the third argument is implied by its lexical meaning (cf. *kick*, *shelve*) will not be considered here.
[7] Margetts & Austin would perhaps say that they would only include dative cases, not dative adpositions, but that would create the problem of distinguishing between cases and adpositions. This problem has not even been solved for a well-studied language such as Japanese (where *ni* is sometimes regarded as a dative case affix and sometimes as a dative postposition), so we do not want to make a major classificatory decision dependent on it.

phrase for the R. Let us now look at serial verb constructions and adnominal ditransitive constructions.

3.2.2. Serial verb constructions

Margetts & Austin 2007 introduce a useful distinction between T-type and R-type serial verb constructions (SVCs), depending on whether the serial verb introduces a T argument or an R argument. In terms of alignment, R-type constructions are indirective, while T-type constructions are secundative. The two patterns are illustrated by examples from Fongbe and Thai, respectively:

(12) Fongbe (Lefebvre 1994:3)
Kòkú só asón ó ná Àsíbá.
Koku take crab DET give Asiba
'Koku gave the crab to Asiba.'

(13) Thai (Natchanan Yaowapat, p.c.)
song cotmaay hay chan.
send letter give 1SG
'(S/he) send him a letter.'

These examples are representative insofar as T-type serial verb patterns involve a verb like 'take' (Margetts & Austin also mention 'use'), and R-type serial verb patterns involve a verb like 'give'. For the latter, however, another common possibility is directional verbs, as can be also found in Thai:

(14) Thai (Natchanan Yaowapat, p.c.)
song cotmaay pay Krungthep
send letter go Bangkok
'(S/he) send a letter to Bangkok.'

Predictably, 'go' serialization involves more goal-like recipients, while 'give' serialization involves recipients that are more like beneficiaries. Interestingly, certain patterns involve both serial verbs, as in the following examples:

(15) Thai (Natchanan Yaowapat, p.c.)
khwaang luukbɔn pay hay khaw
throw ball go give 3SG
'(S/he) throw him a ball'

Thus, languages like Thai give insight into semantic structure of the different types of ditransitive constructions, providing perhaps some empirical evidence for the analyses relying on lexical decomposition, as proposed in the literature (Rappaport Hovav & Levin 2008; Wunderlich 2006).

It should be noted that just as we cannot always distinguish easily between adpositions and cases, it is often difficult to distinguish between serial verbs and adpositions.

3.2.3. Adnominal ditransitive constructions

The adnominal strategy as defined by Margetts & Austin comes in two types: In the **possessive adnominal strategy**, the R is expressed as the possessor of the T ('gave R's T' = 'gave T to R'), while in the **proprietive adnominal strategy**, the T is expressed as an adnominal modifier of the R ('gave R having T' = 'gave R T'). With respect to alignment, the first strategy is indirective, while the second is secundative. Yet an important qualification should be made here. These cases are a distinct encoding type as long as the two arguments belong to a single noun phrase.[8] But for the proprietive strategy, as illustrated from Kayardild, this is not obvious:

(16) Kayardild (Evans 1995: 336)

maku	*dun-maru-tha*	*wuu-ja*	*nguku-wuru*
woman.NOM	husband-(v)DAT-ACT	give-ACT	water-PROP

'A woman gives water to her husband.'

While the proprietive is often used adnominally, it can also be used for clause-level arguments, and it should perhaps be regarded as an instance of the oblique-T strategy (this is also a possibility mentioned by Margetts & Austin).

More interesting are cases where the R is unmistakably NP-internal, as found in Samoyedic and Tungusic (Daniel & Malchukov, in prep.; cf. Creissels 1979). This pattern of NP-internal recipient is exemplified here from Even and Nganasan:

(17) Nganasan (Creissels & Daniel 2006)

təʔə,	*ŋəmsu-δi-ńüʔ*	*təδaʔa.*
here	food-DEST-1PL.ACCPL	bring:PF

'Here, he brought us some food.'

(18) Even (Malchukov 1995:13, and field notes)

etiken	*kunga*	*turki-ga-n*	*emun.*
old.man	child	sledge-DES-3SG.POS	brought

'The old man brought a sledge to/for the child.'

In both cases the possessor is clearly NP-internal: it occurs in the possessor position, and is cross-referenced by possessive agreement on the head. Yet it is interpreted as a recipient or beneficiary rather than a regular possessor due to a special marking on the head: designative agreement in Nganasan and designative case in Even. It is instructive to compare the designative construction in Even to the construction with an accusative object containing a possessive phrase:

(19) Even

etiken	*kunga*	*turki-wa-n*	*emun.*
old.man	child	sledge-ACC-3SG.POSS	brought

'The old man brought the child's sledge.'

In the latter construction the formal possessor is interpreted – in the absence of designative marking – as a regular possessor, not as a beneficiary.

3.3. Word order

[8] Cf. the term "monotransitive give-verbs" used by Cressels & Daniel (2006).

Generalizations about the ordering of the verb and the direct object (= the P) in the world's languages have long been known and studied extensively (e.g. Dryer 1997), but after the the early work by Blansitt (1973) and Sedlak (1975), the ordering of the R and the T with respect to each other received little attention until recently (see Primus 1997 for the languages of Europe, Heine & König 2007 for an extensive world-wide study; and Gensler 2003, Siewierska & Bakker 2007 for the ordering of bound pronouns).

A first generalization that can be formulated is that the R and the T show a strong tendency to occur on the same side of the verb, next to each other. Thus, Table 1 shows that corresponding to each of the basic order types SVO, SOV, VSO and VOS, there are ditransitive order types with R-T order and T-R order. (However, for the rarer VOS order, we do not yet have examples for T-R order.)

Table 1.

basic order type	R-T order	example	T-R order	example
SVO	S V O_R O_T	Tswana	S V O_T O_R	Fongbe
SOV	S O_R O_T V	Uzbek	S O_T O_R V	Ijo
VSO	V S O_R O_T	So	V S O_T O_R	Tahitian
VOS	V O_R O_T S	Q'eqchi'	V O_T O_R S	?

While one might have expected the orders S O_R V O_T, S O_T V O_R, V O_R S O_T, and V O_T S O_R to occur with comparable frequency, this is in fact not the case. Only the order S O_T V O_R, which we already saw in the Tarahumara example in (6b), is occasionally attested, primarily in languages with the order S-(Aux-)O-V-other, which cluster in an area in western Africa (cf. Dryer with Gensler 2005). In particular, all languages of the Mande family seem to exhibit this order:

(20) Jeli (Mande; Cote d'Ivoire; Tröbs 1998:199)

Na	*wa*	*waro*	*sON*	*na*	*seŋ*	*munu.*
I	PERF	money.DEF	give	1SG	father	to

'I gave my father money.'

The ordering of the T and the R with respect to each other is far from being random, too, and interestingly, it seems to depend on the flagging of the two nominal arguments. If both T and R are unflagged, the R generally precedes the T (as in Dagaare, example (4b)). This probably derives from the fact that the R is generally human (and often definite) and thus tends to be more topical than the T, which is typically inanimate (and often indefinite). Based on this consideration, one might expect that the R-T order occurs as overwhelmingly as S-O (=A-P) order, and that T-R order is quite marginal. However, the T-R order is the overwhelmingly dominant order in indirective constructions when the R is flagged by an adposition (Primus 1997, Heine & König 2007). This order is favored under these circumstances in SVO and VSO languages because of the Early Immediate Constituents principle (Hawkins 1994). Similarly, in secundative constructions in SVO/VSO languages where the T is flagged by a preposition, the order is invariably R-T. But the order S O_T O_R V is also attested (e.g. in Burushaski, Chukchi, Evenki, Kalkatungu, according to Heine & König 2007). It cannot be motivated by parsing considerations, but Dik (1997) proposes that the order T-R is more iconic than the order R-T, because in the unfolding of the event the T is first involved in the action, which reaches the R only

in a second step. So iconicity could be a motivation that competes with topicality and parsing ease.

Of course, many languages have considerable word order flexibility, and in quite a few languages it is difficult to establish even a dominant order. In such languages, topicality and definiteness often plays a role in determining the order. In German, for instance, while the neutral order seems to be R-T (cf. (21b) with two definite arguments), the order T-R is normal if the T is definite and the R is indefinite (cf. 21a). This order is not possible if the T is indefinite and the R is definite (21b is possible only with contrastive focus on *dem Kind* and requires a very unusual context).

(21) German
a. *Ich gab den Apfel einem Kind.*
'I gave the apple to a child.'
b. *#Ich gab einen Apfel dem Kind.*
'I gave an apple to the child.'

The ordering of bound R and T forms is less predictable, as one would expect from more grammaticalized constructions. Gensler (2003) found no clear trends, but Siewierska & Bakker (2007) note that when one takes the alignment into account, a generalization emerges: In secundative and neutral alignment, the R tends to be closer to the verb stem than the T (i.e. T-R-V or V-R-T), but the opposite tendency is found in indirective alignment (i.e. R-T-V or V-T-R). Siewierska & Bakker relate this finding to the order of grammaticalization of the bound markers.

3.4. Ditransitive construction alternations

3.4.1. Kinds of alternations

In the simplest case, a language has just a single ditransitive construction, but not uncommonly languages show splits or alternations. A split is the situation where different verbs use different constructions, while an alternation is the situation where one and the same verb can occur with different constructions with roughly the same meaning. Lexical splits will be considered further below in Section 5. The notion of a ditransitive construction alternation is familiar from English, where the alternation between the double-object construction as in (22a) and the prepositional dative construction as in (22b) has been extensively studied (e.g. Mukherjee 2005, Bresnan & Nikitina 2007, Levin & Rapaport Hovav 2008, and much earlier work).

(22) a. *Mary gave John a pen.*
b. *Mary gave a pen to John.*

This type of alternation (generally called "dative alternation", earlier "dative shift" or "dative movement") occurs also in other languages (especially in Western Nilotic, Bantu, and Western Malayo-Polynesian, cf. Siewierska 1998), but it is not very frequent in the world's languages. Siewierska (1998:179) only finds it in 12 out of 219 languages in her sample (about 6%). We also do not know what determines whether a language exhibits such an alternation. Siewierska (1998) attempts to establish typological correlations, using 16 independent cases. For instance, she considers the

possibility that an alternation is correlated with the existence of a V-P and T-R order of the language. But the correlation is clearly not bidirectional: One cannot say that V-P languages with adpositional R-encoding and T-R order generally tend to have an alternation.

The best-known alternation is that between a double-object construction and an indirective construction, but alternations between indirective and secundative constructions are also found in European languages, and in fact are more widespread. However, they tend to be limited to relatively few verbs. In (23) we see an example from Serbo-Croatian (Zovko Dinković 2007).

(23) a. *Lena je poslužila gost-ima čaj i keks-e.*
Lena AUX served guest-DAT.PL tea.ACC and biscuit-ACC.PL
'Lena served tea and biscuits to the guests.'

b. *Lena je poslužila gost-e čaj-em i keks-ima.*
Lena AUX served guest-ACC.PL tea-INS and biscuit-INS.PL
'Lena served the guests (with) tea and biscuits.'

English also has an alternation of this kind, but only with a handful of verbs (*provide, supply, present, entrust, credit,* and a few others).

Some languages allow still more diversity here. Thus, Kayardild has no less than five different patterns with the verb *wuu-* 'give' (three patterns are illustrated below):

(i) In the Dative Construction, the R is expressed by the "verbal dative", and the T and P by "modal cases":

(24) Kayardild (Evans 1995: 336)
wuu-ja wirrin-da ngijn-waru-th!
give-IMP money-NOM 1SG-VDAT-IMP
'Give me money!'

(ii) In the Instrumental Construction, the T is expressed by the proprietive-instrumental case, and the R and P by modal cases:

(25) Kayardild (Evans 1995: 336)
Nguku-wuru wuu-ja dangka-y.
water-PROP give-ACT person-MLOC
'(I) will provide mankind with water.'

(iii) In the Dative-Instrumental Construction, R expressed by the "verbal dative", T by the "proprietive"-instrumental case:

(26) Kayardild (Evans 1995: 336)
Maku dun-maru-tha wuu-ja nguku-wuru.
woman.NOM husband-VDAT-ACT give-ACT water-PROP
'A woman gives water to her husband.'

The first two patterns are straightforward manifestations of indirective and secundative alignment, respectively, as familiar from the previous discussion. The third pattern represents a less common **tripartite** structure, where T and R are

marked distinctly from each other and from P. The third pattern is uneconomical, hence rare cross-linguistically (Haspelmath 2005b); yet as illustrated for Kayardild it can develop through analogical extension (instrumental-marked Ts and allative-marked Rs are attested elsewhere).

3.4.2. Factors determining the choice of construction

Now let us consider what factors condition the choice between the alternating constructions in a language which allows for several ditransitive constructions. Several factors have been implicated in this connection. On the one hand, there may be semantic differences between alternating patterns. Thus for English the dative alternation has been related to the degree of affectedness of the recipient (cf. 'cause to have' vs. 'cause to go to' contrast), although by no means all the verbs carry this implication (see Rappaport Hovav & Levin 2008). Similarly, affectedness has been implicated in the case of some Bantu languages, such as Zulu (Taylor 1989). Some other semantic differences can hardly be generalized: For example, for Kayardild, the Dative Construction (as in (24)) is reported to stress a beneficial effect ("for immediate benefit of R"), the Instrumental Constructions (as in (25)) is used for "for important gifts/contractual exchange"; while the Dative-Instrumental Construction (as in (26)) is used for "for small gifts".

On the other hand, alignment alternations have been related to distinctions between the objects in prominence (animacy/topicality, etc). This is, of course, well known from the literature on dative alternation in English. The Double Object Construction is favored in cases where R outranks T on the prominence scales and is disfavored otherwise (cf. Bresnan & Nikitana 2007, Haspelmath 2007). The prominence includes actually different factors factored out by Bresnan et al. as separate constraints, including animacy, nominal/pronominal status, discourse status (topicality), and the choice of one of the patterns is often due to interaction of one or more of these factors. In other languages discussed below it is easier to factor out the role of each factor in isolation.

The alternation above can be conceived in terms of competition between the R and T arguments for the position of the P-like object, which is resolved on the basis of role and prominence features. (Note that in some languages, the alignment remains indirective even when T is animate). Another way to look at this alternation is in terms of markedness (cf. Haspelmath 2005b). As is well known in the literature (cf. Sedlak 1975), the most frequent type of a ditransitive construction is the one where R is more prominent than T: in particular, R is normally animate and T is not. And deviations from this scenario lead to a marked pattern which can be observed both in the domain of case and agreement (Kittilä 2006a,b; Haspelmath 2005b). One manifestation of this tendency is a shift to a different construction (as above), another is a ban on animate themes as observed for example in Mohawk (Baker 1996).

In other languages, the choice between the patterns is related to topicality rather than animacy. To some extent topicality effects are observed also in English; cf. Van Valin's (2007) examples: *Leslie gave the girl a book*; *?? Leslie gave a girl the book*. Khanty is instructive in this respect. In Khanty (Nikolaeva 1999; 2001), the choice between the two patterns depends on which object is more topical (which object is a secondary topic, in the terms of Nikolaeva 1999). If T is more topical, the construction is indirective: R is introduced by the dative postposition, while T is unmarked and controls object agreement (just as P).

(27) Khanty (Nikolaeva 1999: 40)
Ma a:n Juwan e:lti ma-s-e:m.
I cup John to give-PAST-SG/O+1SG
'I gave the cup to John.'

If R is more topical, the construction is secundative: now T is introduced by a locative-instrumental postposition, while R is unmarked and triggers agreement (Nikolaeva 1999: 40).

(28) *Ma juwan a:n-na ma-s-e:m.*
I John cup-LOC give-PAST-SG/O+1SG
'I gave the cup to John.'

There is still another pattern, which is used when neither T or R is topical; this construction is indirective as far as flagging is concerned, but is neutral in indexing (as there is no object agreement with the "VP-internal object"; Nikolaeva 1999:40).

(29) *Ma juwan e:lti a:n ma-s-ə-m.*
I John to cup give-PAST-EP-1SG
'I gave the cup to John.'

Thus, in Khanty, the construction alternation is driven by topicality; interestingly it affects both indexing and flagging. Yet this option is permitted by the pattern of alignment splits in section 2: prominence related alternation are predicted to affect agreement prior to case; and if case is affected agreement should be affected as well.

3.5. Ditransitive construction splits

While a construction alternation refers to a situation where two different constructions are possible in the same grammatical and lexical environment (with only subtle semantic/pragmatic differences), a **construction split** describes a situation where under a specific set of grammatical and lexical conditions, only one or the other construction is possible. Ditransitive construction splits are not uncommon, and they are most typically conditioned by the difference between personal pronouns and full NPs. In French, for example, nominal recipients are coded by the preposition *à* 'to', but when they are personal pronouns, a special dative form is used (in pre-verbal position):

(30) a. *Elle a donné le livre **à Kim**.*
'She gave the book to Kim.'

b. *Elle **lui** a donné le livre.*
'She gave the book to him.'

(30a) and (30b) are clearly distinct constructions, which occur in complementary distribution. They thus represent a split, rather than an alternation. An example of a split where the contrast is between pronouns and proper names on the one hand, and other NPs on the other, is Drehu (Oceanic; New Caledonia):

(31) Drehu (Moyse-Faurie 1983:161-2)

a. *Eni a hamëë Wasinemu la itus.*
I PRS give Wasinemu the book
'I give Wasinemu the book.'

b. *Eni a hamëën la itus* ***kowe*** *la nekönatr.*
I PRS give the book to the child
'I give the book to the child.'

The factors determining splits are very similar to the factors determining alternations. In general, we can say that the higher the R is on the animacy, definiteness, and person scales, the greater the chance that it will not need special marking.

Construction splits may also be determined in relative terms, i.e. by the relative position of the T and the R on one of the prominence scales (cf. Haspelmath 2007). For example, in Jamul Tiipay (Yuman; California, Mexico), the basic alignment pattern is secundative (in indexing) (see 32a), but changes to indirective if T outranks R on the person scale (see 32b):

(32) Jamul Tiipay (Miller 2001: 162)

a. *Puu-ch xiikay nye-iny-x-a.*
that.one-SUBJ some 3>1-give-IRR-EMP
'He will give me some.'

b. *Nyaach map Goodwill ny-iny-x.*
I-SUBJ you.ABS Goodwill 1>2-give-IRR
'I am going to give you to Goodwill.'

Similarly in Chukchi (Dunn 1999: 207), the only ditransitive verb *-jl-* 'give' agrees with R if it is 1st/2nd person, and agrees with T if both R and T are 3rd person. In both cases flagging remains indirective (R is in the allative case), so the construction split affects indexing only.

A very frequent kind of split based on relative prominence is conditioned by an unusual alignment of the person and role scales: most commonly, 1st/2nd person are R and 3rd person is T. When this is inverted, or both R and T are 1st/2nd person, many languages have a construction split: The ordinary bound-pronoun construction is impossible and a construction with full pronouns has to be used (this is called the Ditransitive Person-Role Constraint; see Haspelmath 2004):

(33) Bulgarian (Hauge 1999 [1976])

a. (3>3) *Az im ja preporâčvam.*
I 3PL.REC 3SG.F.THM recommend.PRES.1SG
'I recommend her to them.'

b. (3>2) **Az im te preporâčvam.*
I 3PL.REC 2SG.THM recommend.PRES.1SG
'I recommend you to them.'

c. *Az te preporâčvam na tjah.*
I 2SG.THM recommend.PRES.1SG to them

'I recommend you to them.'

In the case of construction splits, the alignment of course has to be determined separately for each construction. This issue also arises if there is just a single ditransitive construction, but a split in the monotransitive construction that affects the similarities of coding. A particularly common phenomenon is a monotransitive split involving a flag (case-marker or adposition) that is also used for the R in ditransitives, i.e. **differential object marking** (Bossong 1985), in which the "differential object marker" is identical to the R marker. A well-known example is Spanish, which uses the preposition *a* to code the (nominal) R (*doy el libro a Juan* 'I give the book to Juan'), but also for the animate P (*veo a Juan* 'I see Juan'). Here one would say that with respect to animate Ps, Spanish has secundative alignment, while with respect to inanimate Ps, it has indirective alignment. Since inanimate Ps are more frequent than animate Ps and animate Ps are the special case, we would be inclined to say that indirective alignment is more "basic" than (or "dominant" over) secundative alignment (cf. the concept "basic alignment" in §2). Interestingly, ditransitive constructions show no animacy-based split in Spanish: The R is always marked by the preposition *a*, even in the unusual case when it is inanimate, and the T is never marked by *a*, even in the unusual case when it is animate:

(34) Spanish (Company 2003: 234)
El maestro presentó **Ø** *su mujer* *a sus alumnos.*
the teacher introduced his wife to his pupils
'The teacher introduced his wife to his pupils.'

3.6. Suppletion

A number of languages have distinct forms of the verb 'give' depending on the person(–number) of the R. We refer to this phenomenon as suppletion – though without entering into theoretical debates as to whether this would count as suppletion, in the strict sense, in particular morphological theories, some of which would regard the forms as distinct lexical items. In some cases, the different forms are completely unrelated phonologically, whereas in other cases they seem to be at least diachronically related. The phenomenon is, incidentally, found sporadically but in many different parts of the world; see Comrie (2003) for more details.

The most frequent suppletion pattern is binary, with a distinction between one form for third-person R and another for first- or second-person R being by the far the most frequent, as in Malayalam *koTukkuka* 'give (to 3)' versus *taruka/tarika* 'give (to 1/2)'. In Malayalam, the forms are phonologically unrelated; contrast Tsez *teƛ* 'give (to 3)' versus *neƛ* 'give (to 1/2)', where the initial consonants are etymologically deictic prefixes. Less frequently, there is a binary opposition between one form for first-person R and another for second- and third-person R, as in Kenuzi-Dongola *tír* 'give (to 2/3)' versus *dɛ̌n* 'give (to 1)'.

Occasionally, number is also involved, as in !Xun, where the form *nà* is used only with a first person singular R, *|à'ā* for all other person–numbers (König & Heine 1997+). In some cases, person–number combinations lead to a richer set of oppositions, as in Waskia, where there are four forms: *tuiy-/tuw-* 'give (to 3SG)', *kisi-* 'give (to 2SG)', *asi-* 'give (to 1SG)', and *idi-* 'give (to PL)'; this seems to be an areal and/or genealogical feature of languages spoken around Madang in Papua New Guinea.

Usually, the different verb forms have identical argument structures, but in at least one instance this is not the case. In Saliba, the form *le* 'give (to 1/2)' indexes T in the verb and expresses R by means of a postpositional phrase (indirective alignment); *mosei* 'give (to 3)' takes either this construction or indexes R in the verb and expresses T by means of a bare noun phrase not indexed in the verb (secundative alignment).

Although the suppletion is most widely attested for 'give', it is also attested for 'tell' in some Otomanguean languages (Smith Stark 2001).

This kind of suppletion seems to be an independent phenomenon, occurring for instance in languages that otherwise lack indexing of person–number in the verb completely (e.g. Malayalam), or that otherwise lack person indexing in the verb completely (e.g. Tsez), or that otherwise lack indexing of the person–number of objects (e.g. Waskia). Comrie (2003) hypothesizes that the binary oppositions derive historically from the increasing grammaticalization of originally purely lexical deictic oppositions, and this finds some support in the existence of intermediate systems, such as that of Japanese, where one set of verbs (*kureru/kudasaru*) indicates that R is socially closer to the speaker (thus including, but not being restricted to, a first person R) than is A, while the other set (*ageru/yaru*) indicates that R is socially more distant. Richer systems like that of Waskia seem to have a different origin, namely in the reinterpretation of originally more productive object affixes attached to a zero-stem verb.

There seem to be no comparable instances of suppletion according to the person of the T of 'give', although in some languages 'give' may show suppletion according to other features of T, such as shape and size, features that are known to be likely controllers of object suppletion in monotransitive verbs. For instance, in Huichol we find such forms as *kʷeitïarika* 'give (something long)' versus *ʔïtïarika* 'give (something flat)'. This distinction makes sense in terms of frequency: T of 'give' is usually third person, so it would make little sense to have distinct forms for different grammatical persons; R is usually human, so grammatical person distinctions make sense, but not distinctions according to shape and size.

4. Behavioral properties of ditransitive constructions

4.1. Introduction

In this section we will consider behavioral properties of ditransitive constructions. We will ask which of the objects behaves in the same way as the monotransitive patient with regard to a number of syntactic constructions such as passivization, relativization, and incorporation. This is basically the same question we addressed in the section concerning encoding properties, and the classification of alignment types will be the same: Behavioral patterns, like coding patterns, can be divided into indirective, secundative, and neutral.

These behavioral properties are often called "tests" or "diagnostics", because in the generative literature (including the literature in Relational Grammar and Lexical-Functional Grammar), the guiding question has typically been which of the two objects, the R or the T, is the "direct object" (or occupies the relevant slot in the syntactic tree), and in particular there is an extensive literature discussing the nature of double object constructions (where encoding does not distinguish between the two objects). The problem that this approach is running into is that it is

not clear how the different criteria should be weighted in case of mismatches (see Hudson 1992 for discussion), and that often the choice of criteria seems arbitrary or opportunistic (Croft 2001:30).[9] Moreover, there is no good reason for making the presupposition that all languages should have a "direct object" (or that all languages should have abstract underlying trees of the same kind), so we are not asking this question.

Instead, we are simply asking how the T and the R behave, and how they compare with the P, i.e. what alignment patterns the behavioral properties exhibit. In a next step, we would like to know what preferences (or predilections, or biases) particular behavioral properties have with respect to the alignment types, and eventually we would like to know why this is the case. It is in the light of this research program that many of the following remarks should be seen.

A problem that sometimes arises for the typologist is the language-specific nature of the behavioral properties. Thus, for example, the property of particle verb placement used by Hudson (1992) as one of his diagnostics for English has limited cross-linguistic application. For Ojibwa, it is reported that obviation is a relevant test insofar as the primary object controls obviation of the clausemate secondary object, but again, few languages have comparable obviation phenomena. In Ewe, there is a special "*nya*-construction" promoting an object to a subject position (which incidentally functions on an indirective basis), but which differs from passive in implying that the subject is "pleasant" for the agent. It is clear that these behavioral properties do not readily translate into other languages.

And even when we find analogous constructions, they may be subtly but crucially different in different languages. Let us illustrate this with passivization, the most widely discussed behavioral property of ditransitive objects. Usually, if P is passivized, either R or T can be passivized as well. Yet in Even (Tungusic) it is awkward to passivize either of the object arguments:

(35) Even (Malchukov 1995 and field notes)

a. *Etiken kunga-du turki-v bön.*
old_man child-DAT sledge-ACC give.AOR.SG
'The old man gave a sledge to the child.'

b. *?Kunga turki-v bö-v-re-n.*
child sledge-ACC give-PASS-AOR-SG
'The child was given a sledge.'

c. *?Turki kunga-du bö-v-re-n.*
sledge child-DAT give-PASS-AOR-SG
'The sledge was given a child.'

The explanation for these restrictions is that the passive construction in Even is of the adversative passive type (Malchukov 1993, 1995). In the adversative construction the subject corresponds to a person adversely affected by the event. Now, since the T argument is inanimate it cannot be selected as the subject (hence

[9] For example, as Haspelmath (2007+) points out, Role and Reference Grammar (e.g. Van Valin 2007) seems to have made the aribitrary decision that passivization is more important than other criteria for determining undergoer status (which is roughly equivalent to the notion of "direct object" in RRG).

the unacceptability of (35b)); R can hardly be a subject either unless in special contexts, since the verbs of giving normally imply a beneficial rather than an adverse effect on the recipient (hence the unacceptability of (35c)). Some other types of trivalent verbs, like verbs of dispossession, allow for promotion of the (Ablative) object in an adversative passive construction:

(36) *Kunga turki-v tie-v-re-n.*
child sledge-ACC take_away-PASS-AOR-SG
'(lit.) The child was taken away a sledge (against his will).'

In this case, the properties of the passive construction preclude its use with ditransitive verbs.

The same point can be made with respect to other behavioral properties as well. Thus, relativization that makes use of relative pronouns is most often neutral, permitting relativization of different kinds of arguments and adjuncts, while relativization that makes use of non-finite forms is more likely to be restricted in application.

In what follows we will address the most important behavioral properties discussed in the literature: passivization, antipassivization, relativization, constituent questions, reflexivization, reciprocalization, nominalization, incorporation, quantifier float, and scope properties. We discuss how behavioral properties correlate with morphosyntactic coding. The general conclusion will be that the behavioral properties often show the same alignment as the coding properties, but may also show mismatches. In the latter case we can detect certain tendencies concerning preferences of individual constructions for certain alignment types.

4.2. Passivization

As with argument encoding, we can distinguish three primary alignment types in passive formation: (i) indirective, (ii) secundative, and (iii) neutral.

(i) Indirective passivization (the T and P passivize, but R does not) is illustrated by passivization from the Yaqui indirective construction:

(37) Yaqui (Guerrero & VanValin 2004: 291)

a. *Aurelia-Ø Karmen-ta-u toto'i-ta nenka-k.*
Aurelia-NOM Carmen-ACC-DIR hen-ACC sell-PASTP
'Aurelia sold the hen to Carmen.'

b. *U toto'i-Ø Karmen-ta-u nenka-wa-k.*
the hen-NOM Carmen-ACC-DIR sell-PASS-PASTP
'The hen was sold to Carmen.'

c. **Karmen u-ka toto'i-ta nenka-wa-k.*
Carmen the-ACC hen-ACC sell-PASS-PASTP
'Carmen was sold the hen.'

(ii) Secundative passivization (the R and P passivize, but T does not) is illustrated by passivization from a double object construction in Swahili.

(38) Swahili (Vitale 1981: 130)

a. *Halima a-li-m-pa zawadi Fatuma.*
Halima she-PST-her-give gift Fatuma
'Halima gave a gift to Fatuma.'

b. *Fatuma a-li-p-ew-a zawadi na Halima.*
Fatuma she-PST-give-PASS gift by Halima
'Fatuma was given a gift by Halima.'

(iii) Neutral alignment (both R and T passivize) is illustrated by passivization from a double object construction in Tukang Besi (both objects are marked by the oblique marker *te*):

(39) Tukang Besi (Donohue 1999: 278)

a. *No-to-hu'u-mo na kamba te mo'ane mandawulu.*
3R-PASS-make-PFV NOM flower OBL man beautiful
'The flower was given to the beautiful man.'

b. *No-to-hu'u-mo na mo'ane mandawulu te kamba.*
3R-PASS-make-PFV NOM man beautiful OBL flower
'The beautiful man was given a flower.'

It is perhaps not surprising that in many cases, the alignment of passivization follows the alignment of encoding. Thus, the same indirective alignment as in Yaqui is found in many languages with an indirective encoding pattern, such as Hungarian, Yukaghir, Koyra Chiini, Oriya, and Kazakh. The same point (behavioral alignment matching coding alignment) can be made for Swahili, which has secundative indexing and secundative passivization. Also other languages with secundative alignment show a preference for R-passivization, e.g. Ojibwa, where passivization of R is possible, while passivization of T is not:

(40) Ojibwa (Rhodes 1990; ex. (17b), (24a))

a. **Gii-adaawed-ige-de-w odaminowin.*
PST-sell-PASS-INAN.ABS-3SUBJ toy
'The toy was sold.'

b. *Mazinahigan ni-gii-mii-n-igoo(-n).*
book 1SUBJ-PST-lend-AN.ABS-PASS(-N.INAN)
'I was given a book.'

A connection between the alignment of passivization and the encoding is also obvious in languages which allow alignment alternations. Some languages require a matching between encoding and passivization insofar as only the P-like object can be passivized from a ditransitive pattern. Thus in Khanty, R–passivization is apparently possible only from the secundative pattern:

(41) Khanty (Nikolaeva 1999: 31)

P:etra:j-na xo:p-na mo:jl-ə-s-a.
Peter-LOC boat-LOC give-EP-PAST-PAS.3SG
'He was given a boat by Peter.'

(In this example the T argument is in the Locative-Instrumental case, which indicates that the corresponding active pattern is secundative; the agentive nominal is also incidentally in the same case).

Yet, it is not always the case that passivization of R is restricted to languages with secundative coding alignment, as it is also frequently found in languages with neutral alignment. For example, in the Yaqui Double Object construction, only R can be passivized:

(42) Yaqui (Guerrero & VanValin 2004: 292)

a. *Karmen-Ø toto'i-ta miika-wa-k.*
Carmen-NOM hen-ACC give-PASS-PASTP
'Carmen was given the hen.'

b. **U toto'i-Ø Karmen-ta miika-wa-k.*
'The hen was given [to] Carmen.'

Note that the ditransitive construction in Yaqui is neutral both in flagging and indexing, yet passivization is secundative. Of course, the same point can be made for English, where R passivizes more easily than T from the Double Object construction.

(43) *The children were give sweets.*

(44) ?*The sweets were given children.*

In Japanese, both R and T can passivize from the Dative construction:

(45) Japanese (Miyagawa & Tsujioka 2004:16, 19)

a. *Taroo-ga Hanako-ni nimotu-o okutta.*
Taro-NOM Hanako-DAT package-ACC sent
'Taro sent Hanako a package.'

b. *Taroo-ga nimotu-o okur-are-ta.*
Taro- NOM package-ACC send-PASS-PAST
'Taro was sent a package.'

c. *Nimotu-ga Taroo-ni (yotte) Hanako-ni okur-are-ta.*
package-NOM Taro-by Hanako-DAT send-PASS-PAST
'The package was sent (to) Hanako by Taro.'

Thus, passivization can follow a secundative pattern even if coding is neutral, and a neutral pattern even if the coding is indirective. What is unattested is a language with secundative coding but strictly indirective passivization. Thus, R-passivization is generally preferred over T-passivization. This would make sense given that the function of passives is to topicalize the object, because the R tends to be more topical in the ditransitive construction (cf. Polinsky 1998).

However, apart from topicalizing "foregrounding passives" (in Van Valin's terms), there are also passives whose primary function seems to be to express the affectedness of the P (in particular passives deriving from patient resultatives such as *it is broken*). Since in ditransitives affectedness is primarily a property of the T

rather than the R, is not surprising that such passives (as attested in Hungarian, Yaqui, Koyra Chiini, and many Indo-European languages) tend to be indirective.

4.3. Antipassivization

While passivization promotes the P and demotes the A, antipassivization promotes the A (from ergative to nominative/absolutive) and demotes the P. Antipassives have a fairly strong bias with respect to ditransitives, targeting T in preference to R for demotion. This bias can be seen in languages of different alignment types. Thus, in Dyirbal, which has an indirective alignment pattern with nonderived ditransitive verbs, the antipassive predictably demotes the T to an oblique, coded by Dative case.

(46) Dyirbal (Dixon 1972: 91)
Bayi *wugal-ŋaŋu* *bagum* *ḍiga-gu.*
he.ABS give-ANTIP DET.DAT cigarette-DAT
'He is giving out cigarettes.'

This is expected, given that the basic ditransitive pattern is indirective, and T is coded in the Absolutive case. However, the same pattern has been observed for Eskimo where the basic alignment is secundative:

(47) West Greenlandic (Fortescue 1984: 267)
Uni-si-vuq.
give-ANTIP-IND.3SG
'(He) gave things.' (not: 'He gave people.')

Note that the antipassive *–si-* form suppressing an object applies here to T rather than R.

Similarly, in Chinantec only T can be antipassivized (demoted) from a secundative ditransitive pattern (Foris 1997: 222). Also in Northern Paiute, the antipassive demotes P/T, not R:

(48) Northern Paiute (Thornes 2003:286,287)
a. *Nı midı kuhani.*
I meat cook
'I am cooking meat.'

b. *Nı tı-kuhani.*
I ANTIP-cook
'I am cooking.'

c. *Usu i-tı-kuhani-kı.*
s/he 1-ANTIP-cook
'S/he cooks for me.'

However, some other languages with secundative alignment allow antipassivization of R arguments (often in addition to T). Thus, according to Cooreman (1987), this is possible for some ditransitive verbs in Chamorro (although most ditransitive do not allow this):

(49) Chamorro (Cooreman 1987: 122)

a. *Ha-offresi hao si Juan ni salape'.*
ERG.3SG-offer ABS.2SG the Juan OBL money
'Juan offered you the money.'

b. *Man-offresi si Juan nu hagu ni salape'.*
ANTIP-offer the Juan OBL EMPH.2SG OBL money
'Juan offered the money to you.'

Note that the use of the antipassive form in (49b) triggers demotion of the primary object ('you') to oblique coding (the secondary object 'money' is oblique already in the basic construction), resulting in a double oblique pattern.

Another antipassive construction with double oblique coding is found in Kalkatungu (without the use of dedicated antipassive morphology though), contrasted here with the basic double object pattern:

(50) Kalkatungu (Blake 1990:57)

a. *Nyin-ti anya-ngi ngai maa?*
you-ERG gave-me 1SG food
'Did you give me some food?'

b. *Nyini anyi-minhan-n nga-tyi maa-tyi?*
you gave-IMPFV-you 1SG-DAT food-DAT
'Are you giving me any food?'

Newman (1996:114) finds is difficult to explain the appearance of the dative on the T-argument, but this pattern makes sense if we regard this construction as involving antipassivization which applies simultaneously to both objects. Note that the double object construction in Kalkatungu, while neutral in terms of flagging, is secundative with respect to indexing.

In the case of Chamorro, Ojibwa and Kalkatungu, the alignment of antipassivization follows the secundative alignment of the encoding. Yet, as mentioned earlier, not all languages with secundative alignment behave in this way. Some, like Eskimo, Chinantec, and Northern Paiute, target T in spite of its being the secondary object. In still other languages with the secundative coding, such as Halkomolem, antipassives are impossible from ditransitives (Gerdts 1982:155). Also in Tzotzil, ditransitive verbs, which obligatorily take the applicative *–be-* marker, cannot take an antipassive form (Aissen 1987: 292). Such cases can perhaps be attributed to a "clash" between the secundative alignment type and the intrinsic indirective bias of the antipassive formation.

The general indirective bias of antipassives is understandable, given that the antipassive derivation typically has an aspectual impact, and it is T rather than R that plays the most prominent aspectual role (in measuring out the event; it is T rather than R that is an "incremental theme" in the sense of Dowty and Krifka).

4.4. Relativization

With respect to relativization, two main questions arise relating to the accessibility of positions in the relative clause to relativization. First, which of P, T, and R can be relativized at all in the language concerned, and in particular: Are there differences

among P, T, and R with respect to accessibility to relativization? Second, assuming that they are all relativizable, in what way are they relativized, in particular: Is there any difference in the way of relativizing P, T, and R?

Inability to relativize all or some of P, T, and R is rare cross-linguistically, although some examples do occur. In Malagasy, for instance, only subjects are directly relativizable, so P, T, and R can only be relativized by presenting them in subject position, in which case all are relativizable. Dyirbal has a somewhat similar system, though on an ergative basis, in that only S and P are relativizable (Dixon 1972: 99–105, though without any examples involving 'give'). In the case of ditransitive predicates, either T is coded like P (with R marked with Dative or Genitive case), or R is coded like P (with T marked with Instrumental case). In both cases only the P-like object is relativizable in Dyirbal.

In some languages where all of P, T, and R are accessible to relativization, the same relative clause construction is used for all three, for instance in Japanese, which uses a prenominal gap strategy (i.e. the relative clause precedes the head noun, and the role of the notional head noun in the relative clause is not indicated overtly).

(51) Japanese

a. *gakusei ga kat-ta hon*
student NOM buy-PST book
'the book that the student bought' (P relativized)

b. *gakusei ga kyoozyu ni age-ta hon*
student NOM professor to give-PST book
'the book that the student gave to the professor' (T relativized)

c. *gakusei ga hon o age-ta kyoozyu*
student NOM book ACC give-PST professor
'the professor to whom the student gave the book' (R relativized)

In Japanese, this relative clause construction is used for relativizing all positions, but even in some languages that have different constructions for relativizing different positions, all of P, T, and R are relativized in the same way. In Turkish, for instance, different verb forms are used in relative clauses depending roughly on whether the position relativized is subject (with the verb in a participial form) or non-subject (with the verb in a nominalized form), and the non-subject version is possible for all of P, T, and R.

(52) Turkish

a. *kitab-ı al-an çocuk*
book-ACC take-PRS.PTCP child
'the child who took the book' (Subject relativized)

b. *çocuğ-un al-dığ-ı kitap*
child-GEN take-NMLZ-3SG book
'the book that the child took' (P relativized)

c. *çocuğ-un kadın-a ver-diğ-i kitap*
child-GEN woman-DAT give-NMLZ-3SG book

‘the book that the child gave to the woman’ (T relativized)

d. *çocuğ-un* *kitab-ı* *ver-diğ-i* *kadın*
child-GEN book-ACC give-NMLZ-3SG woman
‘the woman to whom the child gave the book’ (R relativized)

Turkish has an indirective ditransitive construction, but the same pattern is also found in some languages with different ditransitive constructions. For instance, Kinyarwanda has a double-object construction, and all of P, T, and R are relativizable in the same way.

(53) Kinyarwanda (Hurel 1951: 134; Kimenyi 1980: 67–68)

a. *inkoko* *n-a-guz-e*
chicken 1SG-PST-buy.REL-ASP
‘the chicken that I bought’ (P relativized)

b. *igitabo* *umuhûungu* *y-a-háa-ye* *umukôobwa*
book boy he-PST-give.REL-ASP girl
‘the book that the boy gave to the girl’ (T relativized)

c. *umukôobwa* *umuhûungu* *y-a-háa-ye* *igitabo*
girl boy he-PST-give.REL-ASP book
‘the girl to whom the boy gave the book’ (R relativized)

With respect to relativization, the languages mentioned in this paragraph thus all have neutral alignment.

Other languages allow relativization of all of P, T, and R, but require or allow different relative clause constructions for relativizing different positions among these three, thus giving rise to indirective and secundative alignment. Indirective alignment can be illustrated by Italian, where P and T are relativized using the invariable relativizer/complementizer *che*, while relativization of R requires the preposition *a* (used also for full noun phrase Rs) and the relative pronoun *cui*.

(54) Italian

a. *il* *libro* *che* *ho* *comprato*
the book that have.PRS.1SG buy.PST.PTCP
‘the book that I have bought’ (P relativized)

b. *il* *libro* *che* *ho* *dato* *a-l* *professore*
the book that have.PRS.1SG give.PST.PTCP to-the professor
‘the book that I have given to the professor’ (T relativized)

c. *il* *professore* *a* *cui* *ho* *dato* *il* *libro*
the professor to who have.PRS.1SG give.PST.PTCP the book
‘the professor to whom I have given the book’ (R relativized)

Secundative alignment is found in Zulu relative clauses, where P and R require a pronominal prefix on the verb of the relative clause coreferential with the head, while T requires a full pronoun in the relative clause coreferential with the head.

(55) Zulu (Poulos & Msimang 1998: 161; Taylor 1997)

a. *insimu* *umfana* *a-zo-yi-lima*
field boy RELCON-FUT-it-plough
'the field which the boy will plough' (P relativized)

b. *indaba* *o-b-e-wu-ngi-tshela* *yona*
story RELCON.2SG-be-ASP-2SG-1SG-tell it
'the story that you were telling me' (T relativized)

c. *izinsizwa* *ubaba* *a-zi-nik-e* *incwadi*
young.men my.father RELCON-them-gave-ASP letter
'the young men to whom my father gave the letter' (R relativized)

Some languages combine a more general relative clause construction that allows relativization of all of P, T, and R with a more restricted construction that differentiates between P and T. In Finnish, for instance, the postnominal relative pronoun construction (i.e. with the relative clause after the head noun, and a case-marked relative pronoun at the beginning of the relative clause) allows relativization of all of P, T, and R, while the prenominal gap strategy allows relativization of P and T but not of R.

(56) Finnish (Karlsson 1983: 169–170, slightly modified)

a. *kaupa-sta* *oste-ttu* *kirja*
shop-from buy-PST.PTCP.PASS book
'a book bought in a shop' (P relativized)

b. *opiskelija-lle* *anne-ttu* *lahja*
student-to give-PST.PTCP.PASS present
'a present given to a student' (T relativized)

c. **lahja-n* *anne-ttu* *opiskelija*
present-ACC give-PST.PTCP.PASS student
'a student to whom a present has been given' (R relativized)

Often, the different relative clause constructions correspond to differences in clause structure logically independent of relative clause formation. For instance, in Italian the *che/cui* opposition corresponds to that between a bare noun phrase and a prepositional phrase. In Zulu, the full pronoun for T corresponds to the impossibility of a pronominal prefix, with pronominal prefixes being possible for P and R. In this, Zulu contrasts with Kinyarwanda, although both are Bantu languages. This seems to correlate with another distinction between the two languages: Although both languages have neutral alignment with respect to flagging (with all of P, T, and R being bare noun phrases), there is a difference with respect to indexing, since Zulu allows only one object to be indexed – in the ditransitive construction this is usually R (Taylor 1997: 84–85) – while Kinyarwanda allows indexing of both T and R simultaneously (Kimenyi 1980: 66). However, this correlation does not always hold. English, for instance, has a double-object construction with no overt flagging of T or R and no indexing of either, so one might have expected both T and R to have been equally relativizable. But while this is possible for T, acceptability drops when the attempt is made to relativize R.

(57) English
a. *the book that the student buys* (P relativized)

b. *the book that the student gives the professor* (T relativized)

c. *?the professor that the student gives the book* (R relativized)

4.5. Constituent questions

Compared to the formation of passives and antipassives, the formation of constituent questions seems to be subject to few restrictions: Both objects can generally be questioned within a ditransitive pattern. This is certainly true for the languages/constructions with asymmetric (non-neutral) alignment. The following examples show the questioning of R and T from an indirective construction in Malayalam:

(58) Malayalam (Asher & Kumari 1997: 14)
a. *Peena aarkkE koTuttu?*
pen who.DAT give.PAST
'Whom did he give the pens to?'

b. *EntE koTuttu?*
what give.PAST
'What did he give?'

The same is true for languages with a secundative pattern, such as Wari' (Everett & Kern 1997: 22). Also in a double object construction, both objects can usually be questioned, as reported, for example, for Koromfe (Rennison 1997: 18) and Yaqui:

(59) Yaqui (Zarina Estrada, p.c.)
a. *Jabe ili usi-ta mobei-ta maka-k u yoeme?*
qu-word DIM boy-ACC shirt-ACC give-PFV det.NOM man
'Which boy did the man give the hat?'

b. *Jita a maka-k u ili usi a mala-wa?*
qu-word 3SG.ACC give-PRF det.NOM DIM boy 3SG.POSS mother-POSS
'What did the boy give to her mother?'

Against this background, the well-known restriction on the question formation in English is unexpected:

(60) *What did Mary give the boy*?

(61) *?Who did Mary give the book*?

Thus, the formation of *wh*-questions in English seems to follow an indirective pattern, treating R differently from both T and P, which do not show any restrictions in this respect (Hudson 1992). Somewhat similarly, in the Ewe double

object construction, R can be questioned only from the V-T-R pattern, not from the shifted V-R-T (Essegbey 1999: 148). One important fact to be noticed in this connection is that, unlike Yaqui and Koromfe, English allows an alignment alternation, and such alternations are likely to reflect differences in information structure.

4.6. Reflexivization

Reflexivization may involve either pronominal argument-like marking or verbal voice-like marking. When the reflexive marker is argument-like, there are normally no particular restrictions in ditransitive constructions (cf. *She showed herself to me, She showed it to herself).*[10]

However, Tzotzil shows special treatment of R in its reflexive construction with the reflexive pronoun *-ba*: In a ditransitive reflexive clause, A can antecede R, but not P (this matches the secundative alignment of coding):

(62) Tzotzil (Aissen 1987:113)
7i-y-ak'-be *s-ba* *li* *mayoletik-e.*
ASP-3ERG-give-APPL 3-self DET police-CL
'The police gave it to themselves.'
NOT: 'He gave himself to the police.'

This is unusual, and such restrictions would be more expected with voice-like reflexivization strategies. But not uncommonly, we find alignment inheritance, i.e. the behavioral alignment follows the coding alignment. In Sahaptin (Rude 1997), there are two basic ditransitive constructions: the Allative construction with indirective alignment, and the Double Object construction with secundative indexing. As expected on the basis of the coding alignment, only T can be reflexivized in the Allative construction, while R is reflexivized in the Double Object construction:

(63) Sahaptin (Rude 1997: 335)
a. *Piná-ni-ya* *muyuux-mí-yaw.*
SG.REFL-give-PST chief-GEN-ALL
'He gave himself to the chief.'

b. *Piná-ni-ya* *xaxákw.*
SG.REFL-give-PST money
'He gave himself the money.'

Is there any bias associated with reflexive constructions? It seems that there should be a bias towards R-reflexives, since R arguments are normally animate, while T-arguments are not. While this is true, it seems that R-reflexives are dispreferred at least for canonical ditransitives for pragmatic reasons: Reflexive expression of beneficiaries ('built himself (a house)') is more natural than reflexive expression of recipients ('gave himself (a present)'). This may explain why in some languages,

[10] Note that in this paper, we are only looking at reflexivization constructions expressing coreference with the A. Constructions in which the R is coreferential with the T or vice versa (*I showed him himself, I showed him to himself)* are also interesting, but we have too little cross-linguistic data on them.

canonical ditrasitives do not take reflexives at all. According to Bruce (1984: 233, 228), in Alamblak some three-place verbs allow for reflexives with the reflexive pronoun *tukia* 'self' ('rub oneself'), but 'give' verbs do not (*'give oneself').

4.7. Reciprocalization

Reciprocal constructions are similar to reflexives in a number of respects. Here too one needs to distinguish between reciprocal pronouns and indexes on the one hand (which show no peculiarities in ditransitive constructions) and reciprocal voice markers on the other. The use of a voice marker does not exclude the use of (optional) reciprocal pronouns in some languages, such as Even:

(64) Even (Malchukov 2007+)
Nimekel d'eple-v (meen meen-du-r) bö-met-kere-r
neighbors food-ACC (each other-DAT.REFL.PL) give-REC-HAB-AOR.3PL
'The neighbors used to share food with each other (lit. give food to each other).'

Sometimes we find alignment inheritance in reciprocal voice markers as well, as is clearest in languages with an alignment alternation. Above we saw that in Sahaptin, the reflexivization pattern varies with the alignment. The same is true for reciprocalization: In the Allative construction, T stands in a reciprocal relation with the subject, while in the Double Object construction, R stands in a reciprocal relation with the subject:

(65) Sahaptin (Rude 1997: 336)
a. *Pápa-ni-ya=taš miyuux-mí-yaw.*
REC-gave=we chief-GEN-ALL
'We gave each other to the chief.'

b. *Pápa-ni-ya=taš xaxáykw*
REC-gave=we money
'We gave each other money.'

Yet on balance, reciprocals seem to have a general secundative bias irrespective of the alignment of the basic ditransitive construction. This is of course related to the fact that a reciprocal relation normally presupposes animacy on the part of the subject and object, which makes the R a better choice than T. Differently from reflexives, the secundative type is pragmatically natural here ('give to each other'), which would account for a pronounced secundative bias of reciprocal constructions. Indeed, even in languages where ditransitives follow an indirective pattern, it is highly probable that reciprocals based on ditransitive verbs will mark cross-coreferentiality of the subject and the recipient ('give to each other'). For example, in Turkic languages, where the verbal reflexive is restricted to Ps, the reciprocal form of ditransitive verbs is used for cross-coreference with Rs. The same holds for Even, where the alignment of coding is indirective, and reciprocalization is the only construction which consistently shows secundative alignment, targeting (animate) P and R (cf. *ma-mat-* 'kill each other' and *bö-met-* 'give each other' in (64) above).

On the other hand, it is less plausible that in a language with secundative alignment, T can be in a reciprocal relation to the subject. Thus, in Alamblak, which

has a secundative pattern, R can stand in a reciprocal relation to the subject while T is retained as a secondary object, which unlike the primary object is not cross-referenced on the verb:

(66) Alamblak (Bruce 1984: 160)
Maruham na-hay-më-f.
money REC-give-PAST-3D
'They (two) gave money to each other.'

Yet, this generalization should be relativized insofar as it pertains to canonical reciprocals; it is less true for verbs with a goal argument (like 'send'). In the latter case the reciprocal alignment is more likely to be indirective or neutral, as in the following example from Kazakh, where the reciprocal form is ambiguous:

(67) Kazakh (Talant Mawkanuli, p.c.)
a. *olar bir biri-ne körset-is-tı.*
they each.other-DAT send-REC-PAST.3PL
'They sent something to each other.'

b. *olar bir biri-n körset-is-tı.*
they each.other-ACC send-REC-PAST.3PL
'They sent each other (to somebody).'

4.8. Nominalization

With respect to nominalization, the relevant question is which of the two objects can be genitivized in action nominals derived from ditransitives. Thus, in English, T can be genitivized in an action nominal construction while R cannot. For example, the English construction *Mary gave the book to the boy* gives rise to *Mary's gift of the book to the boy*, with replacement of the bare post-head noun phrase by an *of* prepositional phrase, as is usual in English nominalizations. The construction *Mary gave the boy the book* does not form a nominalization (**Mary's gift of the boy (of) the book*).

Of course many constructions are neutral in this respect. In particular, this holds for "weak nominalizations", where only the subject is genitivized while objects remain sentential (compare the English gerundive nominalizations that permit this: *His lending me money surprised me).* More instructive in this respect are languages which allow for genitivization of one of the objects. In most attested cases this object is T. We have observed this for English above; the same pattern is found in Hungarian, where only direct objects genitivize (are indexed by possessive person markers on the action nominal), while indirect and oblique objects must be introduced by *való* 'being':

(68) Hungarian (Kenesei et. al. 1998: 355)
könyv Anná-nak való fel-olvas-ás-a.
book Anna-DAT being PFX-read-NMLZ-POSS
'the reading of the book to Anna'

Thus, in both English and Hungarian, nominalization operates on an indirective basis: only the P and T can be genitivized. Of course, the indirective pattern of

nominalization may be attributed to the indirective alignment of the ditransitive construction in Hungarian. (For English, this would not explain restrictions on genitivization from a double object construction, however). The test case would be a language where the alignment is secundative, but which still genitivizes T in preference to R. Although the data are sparse, we know at least one language that behaves like this: In Alamblak, according to Bruce (1984: 286), in non-finite embedded clauses one of the arguments may be genitivized. Importantly, the secondary object (T) genitivizes preferentially to the primary object (R); cf. object genitivization in a non-finite "purposive relative clause" with the suffix *–yuk*:

(69) Alamblak (Bruce 1984: 113)
yinem-r yemrë-r-oh wikna-hay-yuk yima-r
child meat-GEN.PL buy-BEN-PURP man-SM
'a man to buy meat for the child' (lit. meat's buying (for) child)

As reported by Bruce, the benefactive primary object can be genitivized, only if T/P is incorporated first.

Thus, it seems that nominalization generally has an indirective bias. Still, there is some evidence for the role of the coding alignment pattern as well. For example, Tukang Besi, which has the option of an (ergative) secundative and a neutral (antipassive) ditransitive constructions, allows both T and R to genitivize. Since A is genitivized as well (and indexed by a possessive person markers), the resulting pattern is "triple possessive":

(70) Tukang Besi (Donohue 1999:76)
hu'u-ka-no nu iaku nu bokuj
give-NMLZR-3POS GEN 1SG GEN book
lit. 'their giving of a book of me'

This pattern can be interpreted as a compromise between the coding properties which favor genitivization of a primary object (R) in a secundative pattern and the intrinsic indirective bias of the nominalization pattern. The origin for this bias is not entirely clear, but probably has a semantic motivation: In the study of nominalizations, affectedness has often been implicated as a factor enabling genitivization, and this feature seems to be more readily associated with P and T rather than R.

4.9. Incorporation

Like nominalization, incorporation, too, favors indirective alignment. If incorporation occurs at all in a ditransitive construction, it is invariably T that is incorporated. This may be illustrated by Southern Tiwa, which has two different ditransitive constructions both of which involve incorporation (Allen & Frantz 1983). The first type is indirective insofar as R is marked by a postposition, while the second involves an unmarked R and can be characterized as neutral:

(71) Southern Tiwa (Allen & Frantz 1983: 306-7)
a. *Ti-khwien-wia-ban seuanide-'ay.*
1SG.3SG.R-dog-give-PST man-to
'I gave the dog to the man.'

b. *Ta-khwien-wia-ban* *seuanide.*
1SG.3SG.R.3SG.T-dog-give-PST man
'I gave the man the dog.'

Note that in both constructions T is incorporated, but in the indirective construction, incorporation is reported to be optional.

We can distinguish several subtypes of incorporation, but in all subtypes T is preferentially targeted (cf. Margetts & Austin 2007). Thus, in Yaqui (Escalante 1990: 109), only (accusative) P and T can be incorporated, while R cannot, even when accusative. Similarly in Tukang Besi, only basic objects (P and T arguments), not the applied objects (benefactives and the like) can be incorporated (Donohue 1999: 63).

In fact, it seems that Ts are even more predisposed towards incorporation than Ps. Thus in Southern Tiwa, for animate Ps incorporation is optional even in the secundative pattern, while for Ts it is obligatory; cf. the ungrammatical (72):

(72) Southern Tiwa (Allen & Frantz 1983: 306-7)
'u'ude *mim-wia-ban* *seuanin.*
child 1SG.3PL.3SG-child-gave men
'I gave (to) the men the child.'

A somewhat similar situation is found in Puma (Kiranti; Nepal). Puma has a construction called "Ø-detransitivization" by Bickel et al. (2006) that is similar to idealized incorporation in that the incorporated object has nonspecific meaning and does not trigger object agreement; the A is nominative-marked rather than ergative-marked. Importantly, this kind of detransitivization is possible only with the T of ditransitives.

(73) Puma (Bickel et al. 2006)
Gai-lai *ghasa* *itd-oŋ.*
cow-DAT grass give-1SG.NOM.PST
'I gave grass to the cow.'

Thus incorporation follows a clear indirective pattern, targeting Ts (and Ps), but normally not Rs. The only exception to this generalization is found in Ojibwa, where R-incorporation, results in a pseudo-transitive construction with a sole secondary object (distinguished from a primary object by a special indexing type)

(74) Eastern Ojibwa (Rhodes 1990)
o-gii-asham-Ø-aawas-o-n *niboob*
3SUBJ-PST-feed-AN.ABS-offspring-AN.ABS-N.INAN soup
'She fed her children soup.'

This pattern can be related to the fact that Ojibwa has a pronounced secundative alignment both in coding (indexing) and behavior (it is one of the few languages where antipassive applies to a secondary object). Thus, Ojibwa shows that alignment can override a general indirective preference of incorporation in certain cases. Yet, generally, the indirective bias of incorporation is apparent. This bias clearly has a semantic basis reflecting semantic compositionality. Importantly, similar effects

have been observed in idiom formation, where ditransitive verbs more easily form idiom chunks with a T argument than with an R argument (Hudson 1992)[11].

4.10. Quantifier float

Another syntactic construction that enjoyed some popularity in the literature is **quantifier float**. In typological literature this diagnostic has been mostly discussed with respect to monotransitive alignment, in particular, in discussions of syntactic ergativity (Manning 1996). Generally, the ability to launch quantifiers seems to be associated with the subjects and P-like objects. For instance, German allows quantifier float across an adverb with accusative objects (*Ich habe sie gestern **alle** gefunden*), but not with a dative object (**Ich habe sie ihnen gestern **allen** gegeben*). Similarly, only subjects and direct objects can launch quantifiers in French (Lazard 1998). For Korean it has been reported (O'Grady 1991:53-54) that "floated" postposed quantifiers are launched by both objects in the double accusative construction, but not dative Rs. In Japanese, however, apart from direct objects (P/T), dative R can also launch quantifiers if animate:

(75) Japanese (Miyagawa 1989)
Taroo-ga gakusei-ni huta-ri nimotu-o okutta.
Taro-Nom students-Dat 2-CL package-Acc sent
'Taro sent two students a package.'

The preference for accusative objects to launch quantifiers as compared to dative objects, may be attributed to the indirective alignment pattern. Yet, there seems to be some evidence for a more general indirective preference of quantifier float. Thus, in Tzotzil, which has otherwise secundative alignment, the T rather than the primary object (R) launches a quantifier (Aissen 1983; Dryer 1986). In Alamblak, floating quantifier either pertains to both R and T (see (76), or it pertains to T alone, but never to R alone (Bruce 1984: 174).

(76) Alamblak (Bruce 1984: 174).
Met-t yima-m fëhr hay-buga-më-t-m
woman-3SF man-3SM pigs give-'all'-PAST-she-them
'The woman gave all the men all the pigs.'

These data, admittedly scarce, suggest T-primacy in launching quantifiers. Yet, the basic alignment also plays a role: thus, in Ojibwa, both subjects and objects including (primary and secondary objects) can launch quantifiers.

A construction similar to quantifier float is verbal plural marking. In Dyirbal, the verbal pluractional marker *–Day* marks plurality of absolutive NP, which might be either T or R in different ditransitive constructions. The construction in (77a) is secundative (with R in absolutive and T in instrumental); the construction in (77b) is indirective (with T in absolutive; R, if overt, would be marked by genitive or dative)

(77) Dyirbal (Dixon 1972: 250)

[11] Yet it should be noted that this holds for canonical ditransitives, less so for motion verbs ('send', 'throw'), which have been claimed to compose with T before the goal (Wunderlich 2006). There is also some evidence that the latter types more readily allow for Goal-idioms (see Miyagawa & Tsujioka 2004 on Japanese).

a. *Bayi yaṛa baŋgul wuḍuŋgu wugalḍaŋu*
'He gave the food to lots of men.'

b. *Baŋgul balam wuḍu wugalḍaŋu*
'He gave all the food away.'

Thus, Dyirbal shows alignment dependency in interpretation of pluractionality of the type we have witnessed for *bona fide* cases of quantifier float. On the other hand, Manam shows variability in interpretation as observed for Alamblak. According to Lichtenberk (1988:179), in Manam, verbal number marking in a ditransitive construction can refer to the subject or either of the objects or to "any combination of them":

(78) Manam (Lichtenberk 1988: 179)
Tamóata áine nátu di-te-di-a-ø-dí-a-ru
man woman child 3PL.RL-find-3PL.OBJ-BF-BEN-3PL.OBJ-BF-DU
'The (two) men found the (two) children for the (two) women.'

This type of pluractionality is reminiscent of distributive marking, which when applied to ditransitives may also apply to both objects, as illustrated for Even:

(79) Even (Malchukov 1992:8)
Hupkuchimnge kniga-l-bu kunga-l-du bö-ket-te.
teacher book-PL-ACC child-PL-DAT give-DISTR-AOR.3PL
'The teacher distributed the books to the children.'

Thus quantifier float seems to fade into the domain of verbal pluractionality and distributivity (but also suppletion), which of course can represent a diachronic chain. Another pattern reminiscent of quantifier float is control of secondary (depictive) predicates. This criterion was also invoked by Hudson (1992) for English, who argued for the T-primacy in the English double object construction on the basis of the examples where T rather than R controls a depictive predicate such as *I gave him the meat raw* vs. **I gave him the medicine sick.* Similar restrictions have been reported from other languages as well. For example, in Basque, ergative and absolutive NPs can control secondary predicates (depictives and resultatives), but dative R cannot (Hualde & Ortiz de Urbina 2003:447). Thus, with respect to quantifier float and related phenomena one can preliminarily state a certain indirective bias. It is likely that it is also semantically motivated, like many other phenomena in the domain of quantification. As noted in section 4.3 "incremental" themes are prime candidates for "measuring out" the event and are preferably interpreted as affected.

4.11. Scope

Finally, let us briefly consider a behavioral property that does not concern the relation between T/R and P, but the relation between T and R (it thus does not concern the question of alignment). It has often been noted that scope relations between quantifiers and variables or other quantifiers tend to be asymmetric. A very powerful factor that seems to be present in all languages to some extent is linear order: Preceding elements tend to take scope over following elements. In

English quantifier-variable relationships, this seems to be the only relevant factor: As noted by Barss & Lasnik (1986), English allows *Kim gave every boy$_i$ his$_i$ pencil,* or *Pat introduced every teacher$_i$ to her$_i$ students*?, but does not allow **Kim gave his$_i$ pencil to every boy$_i$*, or **Pat showed her$_i$ students every teacher$_i$*, with the relevant quantifier-variable relationships (indicated by subscripts).

However, it seems that French does show an asymmetry between R and T: While the R can scope over the T even when it follows it, the opposite is not possible:

(80) French (cf. Harley 2003:62)

a. *Kim a donné à chaque$_i$ garçon son$_i$ crayon.*
'Kim gave every boy his pen.'

b. *Kim a donné son$_i$ crayon à chaque$_i$ garçon.*
'*Kim gave his pen to every boy.'

c. *Kim a donné chaque$_i$ livre à son$_i$ propriétaire.*
'Kim gave every book to its owner.'

d. **Kim a donné à son$_i$ propriétaire chaque$_i$ livre.*
'*Kim gave its owner every book.'

Similarly, for Japanese it has been stated that R can scope over T irrespective of word order, while T cannot scope over R unless preceding it:

(81) Japanese (Miyagawa & Tsujioka 2004)

a. *John-ga nanika-o subete-no seito-ni wata-s(i)-ta.*
John-NOM something-ACC all-GEN student-DAT pass-LC-PST
'John passed something to every student.'
(some > every, (?)every > some)

b. *Taroo-ga dareka-ni dono-nimotu-mo okut-ta.*
Taro- NOM someone- DAT every-package-PCL send-PST
'Taro sent someone every package.'
(some > every, *every > some)

The same asymmetry has been reported also for Thai and Fongbe. Polinsky 1998 (following Sgall, Kuno and Van Valin) interprets it in terms of information structure: More topical quantified NPs take scope over less topical NPs (cf. also Van Valin 2007).

4.12. Conclusion

In conclusion, we return to the question whether it is feasible to predict the behavior of the two objects with respect to particular behavioral properties. By now, it should be obvious that no absolute constraints can be proposed in this domain, yet several contributing factors can be identified: (i) harmony or coding-syntax dependency; (ii) preferences associated with functions of specific constructions; (iii) construction-specific biases motivated by the formal properties of constructions.

(i) Harmony

As emerges from the discussion above, there is a clear tendency for behavioral properties to follow coding properties to the effect that the P-like coded object would have P-liked behavior, all other things being equal. This means that in an indirective pattern, the direct object T would show the syntactic behavior typical of Ps in behavioral properties as well, while in the secundative pattern the primary object R would show P-like behavior. However, although there is a clear correlation here, it is equally clear that it is not absolute. For example, we have seen that dative Rs can passivize in an indirective construction, and primary R arguments cannot incorporate from a secundative construction. Yet, a weaker correlation which can be formulated in implicational terms seems to hold. It can be represented in the form of the following implicational hierarchy:

indirective pattern	> neutral pattern	> secundative pattern
← T-transformation		R-transformation →

This hierarchy can be read in two ways:

(A) For multiple targets in a single transformation*:* If a P-style construction (e.g. passivization) is possible for R in an indirective pattern, it is also possible for T, and conversely, if a P-style construction in a secundative pattern is possible for T, it is also possible for R.

It seems that these predictions are generally borne out. Thus, we find languages which allow for T-passivization from the indirective pattern, and R-passivization from a neutral one (English, Yaqui), R and T passivization from an indirective pattern (Japanese), R-passivization from secundative and T from indirective (Jalonke). All these patterns conform to the above generalization.

(B) For a single target across multiple constructions: if a P-style transformation applies to T in a secundative pattern, it will also apply to T in neutral and indirective patterns; conversely, if a P-style transformation applies to R in an indirective pattern, it will also apply to R in neutral and secundative patterns as well.

For example, if R passivizes from an indirective construction, it should be able to passivize (in the same language) from a neutral or secundative construction as well, while the opposite need not be true. Again it seems that the data conform to this generalization.

(ii) functional preferences

As noted above, certain syntactic constructions have preferences for a certain alignment associated with the function they fulfill. For monotransitive constructions such construction-specific preferences are well known from the work by Comrie (1978, 1989), Moravcsik (1979) and Dixon (1979, 1994), but these preferences can be detected for certain behavioral properties in the ditransitive domain as well. Thus we can tentatively propose the following universal preferences:

A. indirective:

- incorporation (and idiom formation)
- nominalization
- antipassivization
-

B. secundative
- reciprocalization
- passivization
- scope

The explanations for these biases are not totally clear but they seem to be related either to discourse pragmatic factors (e.g., passivization targets the more topical constituent; topics tend to have wider scope; cf. Van Valin & Lapolla 1997; Polinsky 1998), or semantic factors (the T is more related to verbal semantics, it composes first with the verb in the process of semantic compostion, and hence can be used to measure out the event, as in case of antipassivization and quantifier float, and is a prime candidate for incorporation and idiom formation).

(iii) structural biases

Apart from universal functional preferences which may be associated with particular transformations, one should take into account construction-specific biases, associated with their form. Often it is insufficient to know the function of a certain construction to predict its behavior without regard to the structural properties. Thus at some level of abstraction both modifying finite clauses and participles would qualify as relative clauses but their alignment would be radically different, ranging from a neutral one (as is usually the case with finite relative clauses with a relative pronoun), to a fixed one (say with resultative participles, which allow only for P/T heads). Structure-related biases should be distinguished from functional preferences, since there may be no one-to-one mapping between the two. Structural factors often have a straightforward explanation in diachronic developments. Thus, as mentioned above passives originating from 'get' verbs often show secundative alignment, as expected given their original meaning.

Thus, all of these factors in combination can determine behavioral properties (syntactic alignment) of the two objects in ditransitive constructions. It remains to be established how these factors interact, but it seems reasonable to look at them as competing motivations which may reinforce each other, or conflict (e.g. a harmony in conflict with a construction bias). When different factors converge the syntactic behavior of constructions under consideration is expected to be more consistent cross-linguistically, when the factors conflict the behavior would be more variable.

5. Lexical variation in ditransitive constructions

5.1. Introduction

Intralinguistic variation in ditransitive constructions may be due to different factors. In §3.4 we considered construction alternations (such as the dative alternation) and splits, conditioned by the semantics of the construction, intrinsic properties of arguments, or their discourse characteristics. On the other hand,

multiple patterns may be due to **lexical splits**, when the choice of a ditransitive pattern depends on a verbal lexeme. Such lexical splits are very common cross-linguistically, if not universal, at least on a broad view of the ditransitive domain Thus, in English, *give* is either indirective (*give sth to sb*), or neutral (*give sb sth*), *say* is indirective only, and *present* can also be secundative (*present sb with sth*). In German *geben* 'give' is indirective (taking a dative R), while *lehren* 'teach' is neutral (occurring in a double object construction). In Russian, *(po-)darit'* 'give as a gift' is indirective taking a dative R, but *o-darit'* (with a different perfectivizing prefix) is secundative taking R as a direct object and T as an instrumental.[12] Similar examples can be provided for many other languages. Lexical splits have not been studied systematically partly because much of the research has focused on the properties of canonical ditransitives, such as 'give' (e.g. Haspelmath 2005a). Yet, it has long been noted that 'give' may be an atypical ditransitive verb, which might be quite exceptional in its properties and not representative for its class (Borg & Comrie 1984, Kittilä 2006c). This also suggests that when one looks beyond prototypical ditransitives such splits may be pervasive cross-linguistically.

In this section we discuss general patterns of lexical splits found cross-linguistically. The main question to be addressed is whether it is possible to establish a predisposition of semantic verb classes for different alignment patterns and make predictions concerning how a verb with a particular meaning will pattern cross-linguistically. The question is thus similar to other work in lexical typology, such as Dixon's (1977) study of adjectives aiming to establish which semantic classes of property words will be categorized as adjectives in a language which has a separate class of adjectives. As in the case of adjectives, it is most instructive to approach this question by looking at languages where ditransitive verbs constitute a closed class.

5.2. Double-object constructions: open and closed verb classes

As is well known, languages differ in the size of the class of verbs occurring in ditransitive constructions. In many languages this class is open. For example, the class of verbs taking a dative argument is open in Russian, as beneficiaries are regularly encoded through the dative case (*postroil mne dom* 'built me a house'). Moreover, the dative is regularly used for ethical datives, malefactives, and external possessors (*slomal mne ruku* '(lit.) broke me the arm'). The same is true of German, and many other languages, although in each language the dative will encode a somewhat different set of roles and consequently the dative construction will differ with respect to verb classes which it accommodates (as captured by the semantic map approach, see below). Also the neutral pattern may be relatively unrestricted in terms of verb classes. Thus, English has an open class of verbs participating in a double object construction (Levin 1993), including verbs with beneficiary arguments (*built him a house*) and verbs of ballistic motion (*throw him the ball*). Cross-linguistically, however, ditransitive constructions with neutral alignment seem to be more restricted lexically, and English is probably not typical, as even a comparison with other Germanic languages reveals. Thus, verbs like 'build' with a

[12] In this section, we only take the alignment of argument coding into account, and for the sake of convenience, we disregard indexing, which often shows complexities. Thus, we will occasionally describe a construction as neutral that is clearly neutral only with regard to flagging, but not necessarily with regard to indexing.

beneficiary do not occur in the double object construction in Dutch, while verbs of ballistic motion like 'throw' do not occur in the double object construction in Icelandic (cf. Barðdal 2007).

Moreover, many languages with a double object construction have been reported to have a closed class of ditransitive verbs. Thus, Yaqui has seven verbs appearing in the double object construction (*miika* 'give', *bittua* 'show', *majta* 'teach', *maka* 'give a gift', *reuwa* 'lend', *tejwa* 'tell', and *u'ura* 'take away'), Diyari has four verbs (*yiŋki* 'give', *wanda* 'show', *ŋaNTa* 'call (by a kinship term)'; *Dika* 'name'), Ewe has three (*ná* 'give', *fiá* 'teach/show', and *fiá* 'ask'), Tukang Besi has two (*hu'u* 'give', optionally *kahu* 'send'), and Thai has only one (*hay* 'give'); see also Kittilä 2006c for other languages. Finally, as mentioned earlier, in some languages, like Tzotzil, there are no nonderived ditransitives at all, and even 'give' includes an applicative marker (see (62) above). Saliba (Margetts 2002) adds a further twist to the story, as 'give' belongs to a closed class of derived ditransitives. In Saliba, a few ditransitive verbs are derived with the applicative suffix *–i*, while most tri-valent verbs involve causative formation:

(82) Saliba (Margetts 1999:300)
Bosa kesega ye-mose-i-di.
basket one 3SG-give-APP-3PL.O
'He gave them one basket.'

It is striking that when a language has a closed class of ditransitive verbs, the same lexemes tend to recur in this class in language after language, most frequently verbs like 'give', 'show', 'teach', sometimes also 'tell', 'send', and 'ask'. Other verbs are less likely to do so, and if they do participate in the ditransitive construction, the same would be true of more canonical ditransitives, mentioned above.

In a recent paper, Kittilä (2006c) also concludes that 'give' is a by far the most typical ditransitive verb. By this he means that 'give' (almost) invariably belongs to a set of verbs which occur in a dedicated ditransitive construction, in particular, the double object construction (which is most clearly differentiated from a monotransitive construction). In particular, he observes that if just one verb is found in the double object construction, then it will always be 'give'. Interestingly, Kittilä also mentions some counterexamples to the stronger claim that in any language, the verb 'give' would be found in the double object pattern if this pattern is available. For example, in German *lehren* 'teach' appears in a double object construction, while *geben* appears in the dative construction. In Malayalam, a ditransitive pattern appears with less canonical ditransitives, but not with 'give', which takes dative.

What can account for this predisposition of 'give' verbs for a double object construction (DOC), and what can account for counterexamples? As we shall see below there are several functional factors which contribute to the special predisposition of 'give' for the DOC. Before turning to them, we shall mention one structural reason for 'give' being the only double-object verb in a language. In some languages, this may be a consequence of using a serial verb construction based on 'give'. Consider Thai, where *hay* 'give' appears as a main verb in a double object construction (in 83a), but is also used as a serial verb introducing recipient/beneficiary arguments (in 83b):

(83) Thai (Wilawan 2000: 1; Natchanan Yaowapat, p.c.)

a. *kháw hây khánŏm dèkdèk.*
he give dessert children
'He gave the children some dessert.'

b. *pàət prà?tuu hây khăw.*
open door give 3SG
'(S/he) opened him a door.'

Crucially, *hay* does not double when it is also used as a lexical verb in the ditransitive construction. Thus, if beneficiaries are regularly introduced with 'give', and there is an (economy) constraint prohibiting doubling, it would make 'give' the only verb occurring in a double object construction, as we observed for Thai. Mandarin Chinese (where *gěi* 'give' cannot double as a main and a serial verb either; Li & Thompson 1981: 384), and Berbice Dutch Creole (Kouwenberg 1994), may serve as further examples.

Yet, in other cases structural factors cannot account for the predilection of 'give' verbs for the ditransitive pattern, so we have to look for other explanations. Kittilä (2006c) attributes this predilection to the fact that 'give' counts as "highly transitive" on a number of semantic transitivity parameters (identified by Hopper & Thompson 1980): In particular, it takes three arguments (unlike verbs with external beneficiaries), and depicts a situation with an R participant that is affected (unlike 'send' verbs which do not carry this implication). Indeed both features seem to be relevant. In particular, the role of affectedness is most obvious in the case of languages like English or Zulu (Taylor 1989), where the dative alternation is related to affectedness. The role of this factor can also be appreciated by looking at languages which go against the general tendency to assign 'give' to the class of double object verbs. For example, in Mandarin Chinese, verbs like 'steal' appear invariably in the DOC, while one of the 'give' verbs (*song*) allows variation between a DOC and a prepositional construction. Actually, it seems to be common that a DOC includes some of the verbs like 'steal', 'take-away, snatch' and the like. Arguably, these verbs score higher on the scale of affectedness than 'give', which would account for their frequent use in a ditransitive construction.

Another factor contributing to the preferential use of the 'give' verbs in a double object construction is an asymmetry between the two object arguments in prominence (animacy/ referentiality). This asymmetry has long been noticed for 'give' verbs, which normally have an animate R and inanimate T (Sedlak 1975), and definitely contributes to the use of unmarked patterns with ditransitives. Indeed, in the situation where the respective roles of the two objects are disambiguated through animacy, case marking becomes dispensable. Note that those ditransitive verbs which necessarily involve two animate objects do not show a predisposition for a double object construction (cf. **He introduced John Mary*). And a language may shift from a neutral to indirective pattern in a situation when T is animate (as in Chinantec), or pronominal (as in some varieties of English). For some verbs like 'teach', this asymmetry is even more pronounced, hence they can appear in a double object pattern even in languages where 'give' cannot (cf. the discussion of German *lehren* 'teach' in Plank 1987).

Above we have seen that there are functional factors like affectedness and prominence asymmetry which can explain the predisposition of 'give' verbs for a double-object construction, but also account for counterexamples. Namely these counterexamples involve verbs which outrank 'give' on one of the parameters:

'steal/snatch' verbs score better on affectedness, while 'call/teach' verbs on the asymmetry dimension. There is, however, another class of counterexamples, which has a structural rather than functional explanation. Thus, in Malayalam, 'give' takes a dative construction, while "less canonical ditransitives" (Asher & Kumari 1997: 205) like 'entrust' and 'feed' take a DOC:

(84) Malayalam (Asher & Kumari 1997: 205)
a. *kuʈʈi enikkə peena tannu.*
child I.DAT pen give.PAST
'The child gave me the pen.'

b. *ɲaan puuccakkə paal koʈuttu*
I cow.PL.ACC grass eat.CAUS.PAST
'I fed the cows grass.'

These are discussed further in section 5.3.

5.3. Nonderived vs. derived ditransitives

Importantly, the verbs in the construction of (84b) are (lexicalized) causatives, and causatives of transitives in Malayalam regularly take a double object construction. This is not an isolated case. In a number of other languages, derived ditransitives (causatives and applicatives) appear in a DOC, while basic ditransitives do not. This is true, for example, for Imbabura Quechua; compare the dative construction with basic ditransitives in (85a) and the double object construction with derived ditransitives in (85b):

(85) Imbabura Quechua (Cole 1982:70, 136)
a. *Juzi Marya-man muti-ta kara-rka.*
José María-to mote-ACC give-PST 3
'José gave/served mote to María.'

b. *Juzi-ka Marya-ta-mi Juan-ta riku-chi-rka..*
José-TOP María-ACC-validator Juan-ACC see-cause-PST 3
'José caused María to see Juan.'

In North Tungusic (Even and Evenki), basic ditransitives take a dative construction, while causatives of (transitives) appear either in a dative or a double object construction. In the latter case they have exclusively the 'factitive-coercive' reading.

(86) Even (Malchukov 1995:14)
a. *Ewe-sel Kad'd'ak-tu miine-w böö-r.*
Even -PL K.-DAT wine-ACC gave-AOR.3PL
'Evens made Kad'd'ak drink the wine.'

b. *Ewe-sel Kad'd'ak-tu/Kad'd'ak-u miine-w kool-ukan.*
Even-PL K.-DAT/ K.-ACC wine-ACC drink-CAUS.NONFUT.3PL
'Evens made Kad'd'ak drink the wine.'

Similarly, in some other languages, the DOC is either more restricted or optional for basic ditransitives, as compared with derived ones. In Udihe (East Tungusic), the DOC is restricted to a few lexical ditransitives, but is productive with derived ones (causatives of transitives). In Koyra Chiini, only two basic ditransitives can appear in the double object construction, but derived ditransitives (causatives) regularly do so. In Saliba (Oceanic), 'give' alternates between an allative pattern and a DOC, while for causatives only the DOC is possible. In Kashmiri, R is dative with the basic ditransitives, but may be either dative or accusative with derived ones. In Yaqui (Guerrero & Van Valin 2004), a few basic ditransitives occur in the DOC, while with derived ditransitives the double-accusative (and even triple-accusative) construction is the only option. (Dixon 2000:52 mentions some other languages where only derived ditransitive form a DOC).

Thus contrary to Kemmer & Verhagen (1994; cf. Song 1996), who suggest that derived ditransitives are modeled on basic ditransitives, basic ditransitives can be modeled on derived ditransitives as well. This is especially clear in languages with a small class of ditransitives, or where all ditransitives including 'give' are derived (as in the case of Tzotzil mentioned above). Thus, the answer to the question of §5.1 "Is it possible to predict the range of verbs appearing in a double object construction?" seems to be "To a certain extent". As we have seen with respect to the double object construction, there are different factors which make 'give' preferentially eligible for this pattern ('give' is trivalent, asymmetric, involves an affected participant, etc). Yet some languages may reserve this pattern for other verbs, also for some good (functional and structural) reasons. If one extends the discussion from the double object construction to other ditransitive patterns (e.g. the dative construction), the semantics of the object markers (e.g. dative) become crucial in predicting the range of verbs participating in particular patterns. Obviously, the range of verbs in a language where 'give' appears in an allative construction (with R in the allative case) would be different from the range of verbs where 'give' appears in an instrumental construction (with T in the instrumental case). In the following section we will look at the functions of case-markers appearing in the ditransitive construction more closely.

5.4. Marker polysemies, cognitive networks, and semantic maps

Before we turn to the general discussion of lexical splits in ditransitives, it is useful to briefly consider polysemy patterns of the R and T markers. In the literature different polysemy patterns of argument markers have been noted (Blansitt 1988; Newman 1996). Newman (1996) provides a useful cross-linguistic overview, noting several polysemy patterns, with R encoded as a (spatial) goal (by Allative case, as, e.g., in Finnish), as a beneficiary (by a benefactive preposition as, e.g., in Chrau), by a general locative marker (as, e.g., in Greek) or by a genitive case (as, e.g., in Dyirbal). Working in the cognitive grammar tradition, Newman represents the meaning of R (and T[13]) markers through hierarchically organized semantic networks capturing similarities between individual meanings in particular languages. Thus, the function of the English preposition *to* is represented as follows (the temporal meaning of *to* is disregarded here):

[13] Newman also noted the frequent polysemies of the T marker, of which the one with an instrumental marker is of particular importance.

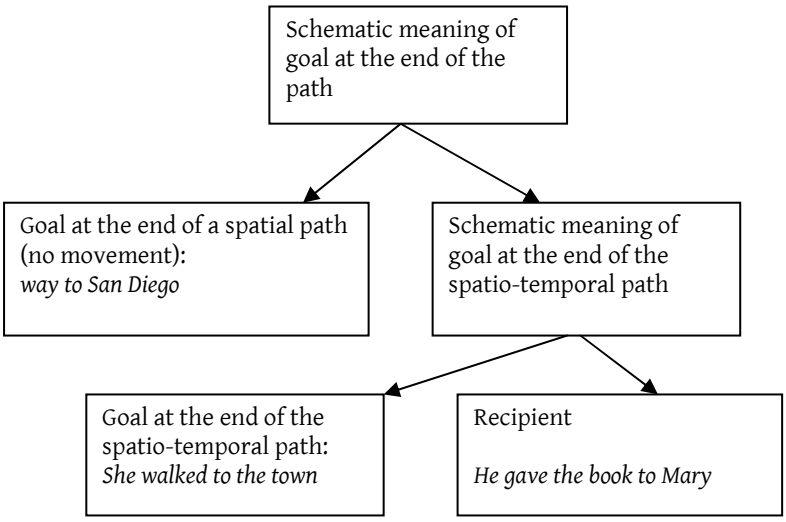

Figure 4. Meanings of English *to* (Newman 1996:91)

One of the problems with such semantic networks, admitted by Newman himself, is that for more complex networks it is more difficult to identify the general meaning of a marker (cf. his discussion of the Japanese "dative" marker *ni*). Another limitation of this approach is that the established semantic configurations are language particular, and it is not clear whether they can be extended cross-linguistically (Haspelmath 2003). To overcome the latter problem the semantic map methodology, as developed by Anderson (1982), Croft (2001) and Haspelmath (2003), can be employed. Semantic maps are established through the study of recurrent polysemy patterns across languages, yet the established semantic configuration is claimed to be universal. In particular, the semantic maps should comply with the contiguity requirement to the effect that regions covered by a polysemous marker must cover a contiguous space on the map. Thus, they are designed to capture generalizations, like the one proposed by Blansitt (1988): If goals and beneficiaries are similarly encoded, the same encoding will be found with recipients as well. This generalization can be immediately read off from a map for dative functions, suggested by Haspelmath (2003), where R is intermediate between goal and benefactive functions.

To illustrate the notion of a semantic map, Haspelmath (2003) sketched the map in Figure 5 for the "dative domain", including the following functions: (i) direction (cf. *go to Leipzig*); (ii) recipient (cf. *gave an apple to me*); (iii) experiencer (*It seems outrageous to me*); (iv) purpose (*I left a party to get home early*), as well as some others which are lacking for English *to* but available for French *à* or Russian dative: (v) predicative possession (cf. French: *Ce chien est à moi* 'This dog is mine (lit. to me)'), (vi) dativus judicantis ("judger's dative", as in German: *Das ist mir* (DAT) *zu warm* 'This is too warm for me'), (vii) external possession (cf. Russian: *On mne slomal ruku* '(lit.) He broke me the arm'), (viii) beneficiary (cf. Russian: *On mne kupil knigu* 'He bought me a book'). The map below shows the boundaries of English *to* and the Russian Dative in the area of dative-like functions.

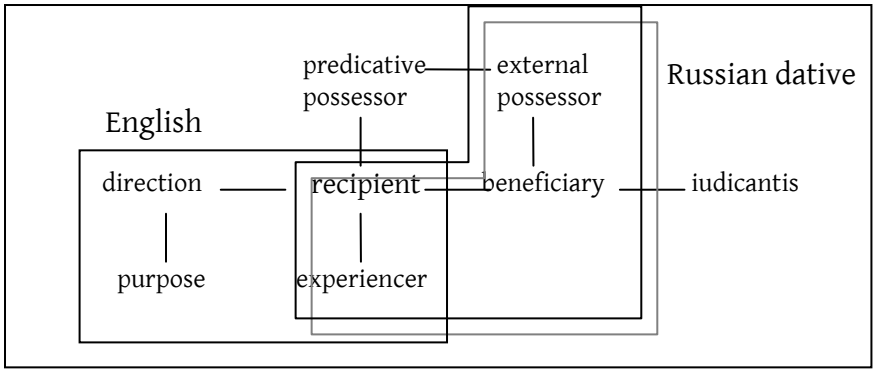

Figure 5. Semantic map of dative functions including the boundaries of English *to* and the Russian dative (cf. Haspelmath 2003: 213)

While Haspelmath's map zooms in on the particular functions in the dative domain, some more general (external) links should be mentioned as well. Thus, as is well known from languages displaying Differential Object Marking (e.g., many Indo-Aryan languages), some recipients and patients may be marked by the same ("dative-accusative") case. On the other hand, in many languages where dative aligns with directional, the polysemy can extend further into the locative domain (which is true for the French *à*, and also for many Altaic languages). Further, some languages (in particular, Australian and Austronesian) show dative-genitive polysemy, thus extending dative marking further beyond the beneficiary and external possession. Some of these connections will be pursued below. In the present context, two properties of the map are of particular importance: the connections of R to beneficiaries and goals. Another connection to be added is with patient, as noted above.

For our purposes it is sufficient as a first step to introduce the following map, representing the basic ditransitive alignment types. It shares with Haspelmath's dative map the basic connections of the R marker, including beneficiary and goal. In addition it includes further connections relevant in the context of trivalent verbs: the malefactive-source (*I robbed him (of) money*), and the patient in the patient-instrumental construction (such as *He hit the man with a stick*).

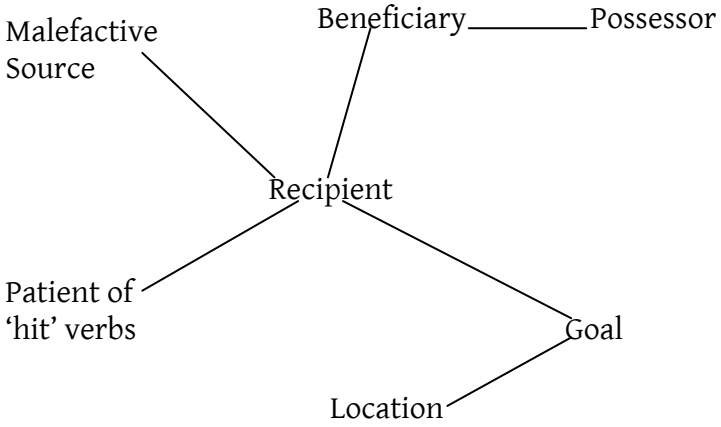

Figure 6. A semantic map for Recipient and related functions

This simple map has an immediate advantage over semantic networks as proposed by Newman, in that it brings more structure into the network, and the proposed configuration is assumed to be universal. In particular, it shows that

possessor is related to R not immediately, but through the beneficiary function, or that the locative function is related to the recipient via the goal function. For example, if the possessive (genitive) marker is found with recipients (as in Dyirbal), it should also be available for beneficiaries. Yet, the possessive marker may be confined to beneficiaries without extension to recipients (as in the case of Imbabura Quechua, where the recipient is marked by the Allative; Cole 1982), a configuration permitted by the map. In a similar way, this map captures generalizations like the one suggested by Blansitt (1988): If the same marker is found with both goals and beneficiaries, it will also be found with recipients. This polysemy pattern can be illustrated by the extensions of the meaning of the Finnish Allative (as represented on the map in Figure 15 below). Similarly, the map in Figure 6 would predict that if the same marker is used with the patient of 'hit' and malefactive source functions, it will also be used with the intermediate R-T pattern found with the canonical ditransitives. This seems also to be corroborated by the data available. Thus, the double object construction in Emai (Schaefer & Egbokhare 2003) is used indiscriminately with 'give'-verbs, 'hit'-verbs, and 'steal'-verbs. (The same is true of the secundative construction with the polyfunctional oblique preposition in Yoruba). As for the possible links in the "horizontal" domain, the predictions of the map should be qualified insofar as there may be other mediating connections as well. Thus, allative verbs can be related to instrumental via 'spray/load' verbs, while experiencer can be related to beneficiary through an external possession (malefactive) function (see below).

There can of course be further extensions of the map, for example, from beneficiary to the domain "substitutive benefaction" ('instead of', Kittila 2007), and possession proper (cf. the possessor function on the role map in Figure 6); such extensions will be disregarded here. Also one can further "zoom in" on particular functions, gaining insights from languages which make further distinctions between individual functions. For example, in Chechen there are two strategies to encode a beneficiary, the Allative and the Dative: the former is used for temporary transfer, the latter for permanent transfer. In Korean there are four different "dative" markers, the choice depending on animacy, but also on the style/politeness distinctions. The latter distinction is probably more characteristic for politeness-prominent languages, while the former is pervasive cross-linguistically. As expected, if a language makes a distinction between animate and inanimate goals, R will show the same encoding as the animate ones. In the present context, however, it is relevant that the ditransitive maps should also be made more fine-grained with respect to the verb classes, as explained in the next section.

5.5. Integrating verb classes: partial scales

Above we have seen that the study of polysemies of individual markers (e.g. datives and other recipient markers) in isolation is often insufficient, since the roles of both objects need to be taken into account. Thus, the grouping of recipients with patients (e.g., both roles are accusative-marked) is related to the instrumental encoding of themes. This shifts the focus from the study of polysemies of individual markers to the study of polysemy patterns of ditransitive constructions, paving the way to the study of lexical variation in this domain. Taking lexical properties of individual verbs into account is also necessary for another reason: The divisions into distinct semantic roles (beneficiary, goal, etc), whether considered as primitives or reconstructed through lexical decomposition, are not fine-grained enough. Thus, it

is usual to distinguish between two basic types of ditransitive verbs: verbs of change of possession (ditransitives proper such as 'give') and verbs of change of location or caused motion such as 'send' (Wunderlich 2006, Rappaport Hovav & Levin 2008). This would account for the distinct morphosyntactic behavior of 'send' and 'give' verbs in many languages (the difference is not immediately evident in English). In terms of semantic roles, one would say that 'give'-verbs take a recipient while 'send'-verbs take a goal argument. Yet further research shown that the distinctions are more gradual, so that a more fine-grained verb taxonomy is needed. Consider the case of transfer verbs in Germanic languages, discussed by Croft *et. al* 2001. Comparing the argument encoding of the three transfer verbs 'give', 'send', and 'throw', Croft *et. al* conclude that the Germanic comparative facts offer evidence of a scale of "inherent transfer": 'give' < 'send' < 'throw'. Verbs with a high degree of inherent transfer tend to be expressed in a double object construction, and verbs with a low degree tend to be expressed by a prepositional-recipient construction. The extension of the encoding strategies in three Germanic languages can be schematically represented as follows:

Figure 7. Encoding of 'transfer verbs' in Germanic (Croft et. al 2001)

	'give'> 'send' > 'throw'
English DOC	----------
German (Dative)	---------- (*zuwerfen*)
Icelandic (*till*)	----------

Thus, many languages overtly code the distinction between transfer of possession verbs and caused motion verbs, while English needs additional tests to discriminate between these classes.[14] As noted by Croft *et. al* (2001) and Rappaport Hovav & Levin (2008), the syntactic behavior is basically semantically motivated: Thus, *give* is a verb of transfer of possession, *throw* is basically a caused motion verb, while *send* is arguably both (cf. Wunderlich 2006). However, it is important to acknowledge that the distinctions are gradual, and more classes may need to be recognized. Thus, as is well-known from the literature, verbs of causation of continuous motion like *pull* are still less prone to be used in the double object pattern, as compared to verbs of instantaneous motion like *throw* (cf. ??*pulled him a chair*). Thus, still more fine-grained classes have to be included, and their exact semantic characterization will still have to be provided (see Krifka 2004 for some suggestions in this direction).

Moreover, zooming in on canonical ditransitives may reveal further differences. Thus, an early study by Borg & Comrie (1984) considered three canonical ditransitive verbs in Maltese, and found differences in encoding properties (both flagging and indexing), as well as behavioral differences (not considered here).

Figure 8. Encoding of recipient/beneficiary in Maltese (Borg & Comrie 1984)

	'give' > 'show' > 'teach' > 'buy-for'
lil 'to'	----------
għal 'for'	---------
Accusative indexing	----------
Dative indexing	----------

[14] For example, Rappaport Hovav and Levin (2008) note that only *send* and *throw* can be felicitously used in *where* questions, cf. *Where did he throw/send (a letter)*? **Where did he give (a book)?*

Thus, we find the same gradience among canonical ditransitive verbs as well. It remains to be seen whether this behavior is cross-linguistically consistent, but it appears that 'show' verbs are cross-linguistically among the most typical ditransitives, often found in languages with a closed class of ditransitives (e.g., in Manam, there are just two ditransitive verbs 'give' and 'show').

Yet, in other cases, it is clear that the pattern is not random. Turning to the gradience of transfer verbs discussed by Croft *et. al*., we can find support for their scale beyond European languages, as summarized in Figure 9:

Figure 9. Encoding of transfer verbs: more examples

	'give' > 'send' > 'throw'
Even (dative)	----------
Bezhta (dative)	----------
Chinese (DOC)	-------

Both extended (to 'throw', as in Even) and restricted (to 'give' and 'send', as in Bezhta) uses of the dative seem to be common cross-linguistically (the former is found, for example, in Russian, the latter in Hungarian). A restriction of the dative to 'give' alone is less common, but double object constructions are often restricted in this way (e.g., in Chinese). Moreover, a dedicated allative marker (as German *zu*, Russian *k*) is usually excluded for 'give' verbs, and this again groups 'send' and 'throw' verbs together.

Above we considered the continuum linking transfer of possession and caused motion verbs, but there are other continua as well, roughly along the networks of recipient polysemy on the map in Figure 6 above. Thus, apart from the **allative extension** of the map, as discussed by Croft *et. al*, there are other extensions as represented on the role maps, which may also turn out to be gradual on closer inspection. Thus, there is gradient **benefactive extension** leading from recipients to beneficiaries (and further to possessors).

Figure 10. Ditransitive-benefactive cline.

	'give' > 'sell' > 'build (smth for smb)'
Yaqui (DOC), Chechen (allative)	-----
Thai (*kɛ̀ɛ*), Bangla (dative)	----------
Russian, German (dative)	----------

The first pattern is rather common in languages with a closed class of verbs appearing in a double object construction (like Yaqui). In Fongbe, the DOC can optionally be found with 'sell' as well. The first pattern is also found in languages where the dative marker is of allative origin (as in Chechen). On the other hand, many languages especially with prepositional marking of the beneficiary (cf. English *for*) align 'sell' with 'give' rather than 'build' verbs (things may be different, though, for other verbs of transaction like 'buy'). This gradience also seems to be semantically motivated, insofar as 'give' implies a physical transfer of the theme (physical motion), 'build' does not, while 'sell' falls in between in this respect. In other words, 'give' can be still conceptualized as a caused motion verb, while 'sell' undeniably indicates transfer of possession. This is also evident in Nakh-Daghestanian languages, where 'sell' (and 'build') take a dative beneficiary, while 'give' can take either a dative or an allative recipient, depending on whether the

transfer of possession is permanent or temporary (the latter can be interpreted in terms of caused motion, it seems). As with other continua there can be further extensions of the scale, in particular into the domain of possession (see the benefactive-possessor connection on the role map). Here the prediction would be that if possessive encoding reaches 'give' verbs, as is the case in Qiang (where the recipient can be marked with genitive), it will also be found with 'sell' and 'build' verbs, representing intermediate nodes on the map.

Finally, one can set up an **instrumental extension** where instrumental encoding is extended from prototypical instrumental verbs such as 'hit' and 'beat' into the ditransitive domain; the intermediate group includes verbs such as 'feed', 'provide' and 'award':

Figure 11. Ditransitive-instrumental cline

	'give' > 'feed' > 'hit'
Even (instrumental)	-----
Jalonke (instrumental)	----------
Eskimo (instrumental)	----------

Thus, in Even the instrumental is confined to 'hit', while 'feed' (like 'give') takes a dative pattern. In Jalonke and Russian, 'feed' aligns with 'hit' (in an instrumental pattern), and in English both patterns are possible. Finally, some languages use the same pattern for all three types: this might be an extended instrumental pattern as in Eskimo (where 'give' verbs take an instrumental object), or an extended dative pattern (as in Chechen, where 'hit' takes a patient in the dative and an instrument in the absolutive case).

Given that individual verb types appear on several scales, the scales can be combined. Thus, the following scale combines the clines of instrumental and indirective extensions (the latter basically collapsing the allative and benefactive extensions). The following complex scale represents extensions of the Eskimo instrumental and the Even dative across the verbs types:

Figure 12. Combining sub-scales.

	'hit' > 'feed' > 'give' > 'send' > 'build for'
Eskimo (instrumental)	⟶
Even (dative)	⟵

It is also interesting to consider multiple extensions of a particular strategy in a language which shows alignment alternations, such as Khanty. As mentioned above, Khanty has both an indirective and a secundative strategy with ditransitive verbs (Nikolaeva 1999). The language is unusually liberal in allowing extensions of a particular strategy into another domain. Thus, the indirective strategy is found not only with 'give' verbs but also with 'feed' verbs, one step down the scale, while the secundative instrumental strategy is found not only with canonical ditransitives like 'give' verbs, but also with verbs like 'cook' with an optional benefactive. "Syntactically both groups behave identically..." (Nikolaeva 1999: 40).

Figure 13. Khanty: extensions of instrumental and allative strategies

	'hit' > 'feed' > 'give' > 'build for'
instrumental:	⟶
allative:	⟵

5.6. Towards a semantic map for ditransitive constructions

One of the advantages of the semantic map is that different maps/scales can be integrated into a single map (Haspelmath 2003). The following map integrates a number of verb types from individual scales into a single map. The map shows some additional connections, such as a connection between benefactive, malefactive, and external possession, which may be related through an experiencer function (a common superordinate function, related to both recipient and malefactive source, as suggested by Newman 1996: 117-8). External possession can then provide another link between experiencers and beneficiaries without recipient as a mediating category. Another link shown on the map but disregarded in the present context is the extension from allative to instrumental domains, which may be mediated by 'load'-type verbs, which frequently allow for alternative alignment patterns (the "spray/load alternation").

The semantic map provides a convenient way of capturing the distribution of particular encoding strategies across different verbs types. By way of illustration, the range of functions of the two most important ditransitive constructions in English is indicated on the map in Figure 14.

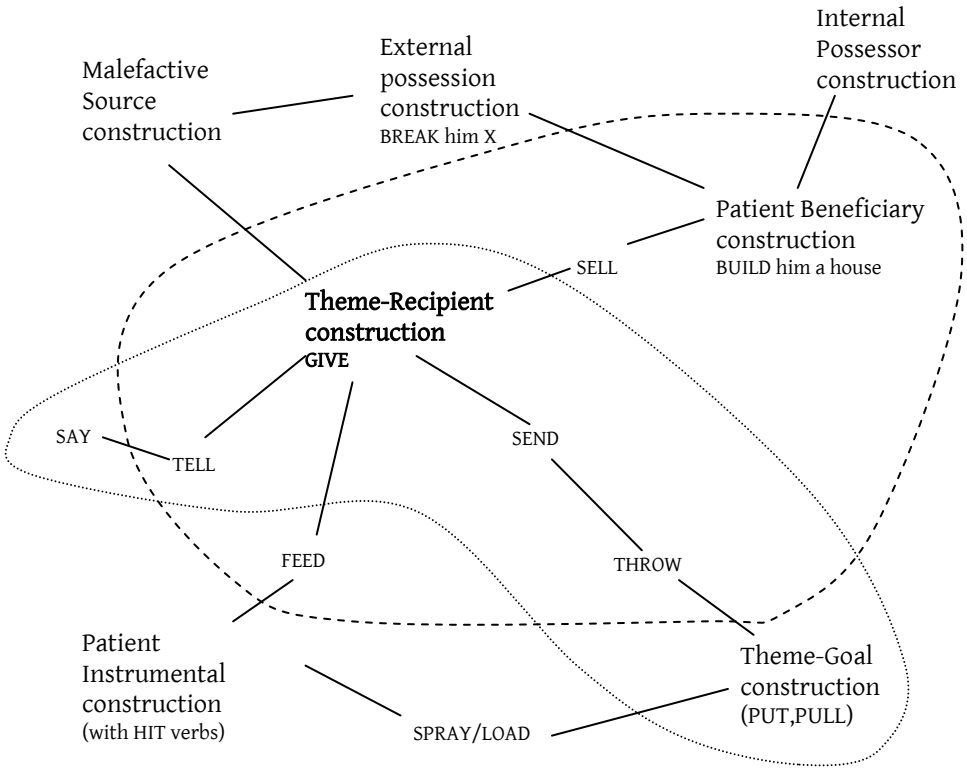

Figure 14. **A semantic map of ditransitive constructions**
The lines indicate an approximate range of verbs participating in the English Double Object Construction and *to*-NP Construction; their intersection delimits verb types participating in a **dative alternation**; DOC - - - - - - -, *to*-NP ·····)

It is clear that in the present form, the map is in many respects incomplete. It shows just a selection of the verb types identified by Levin 1993 in English. There may be further connections on the map: Thus, 'ask' verbs are arguably intermediate between 'tell' and 'take' verbs, 'cover'/'fill' verbs are intermediate between 'hit' and

'load' verbs, and 'pour' verbs are intermediate between 'load' and 'put' verbs. These additional classes do not present problems for the map (i.e. do not represent contiguity violations), but some other classes do introduce complications. Thus, on a richer map 'tell' verbs should be connected to the allative domain, with the verbs of sound emission (cf. 'shout (to)') as an intermediate class: These groups may share directional encoding, which cannot be represented on the two-dimensional map. The major question which needs to be empirically investigated concerns the level of granularity of verb classes which best suits the purpose of cross-linguistic comparison.

It is clear that the construction map inherits the basic layout of the role map, distinguishing between four major associations of the recipient markers (with goals, beneficiaries, malefactive sources and patients). As on the role map, rightward associations are indirective (goal, beneficiary), and leftward associations are either secundative (instrumental) or neutral (double object construction). In Figure 15, some of the extensions of the basic ditransitive constructions in three languages (Finnish, Eskimo and Jamul Tiipay) are represented, in order to illustrate basic alignment types: (i) indirective alignment (cf. the extension of the allative case in Finnish), (ii) secundative alignment (cf. the extension of the instrumental case in Eskimo), and (iii) neutral alignment (cf. the domain of the double object construction in Jamul Tiipay):

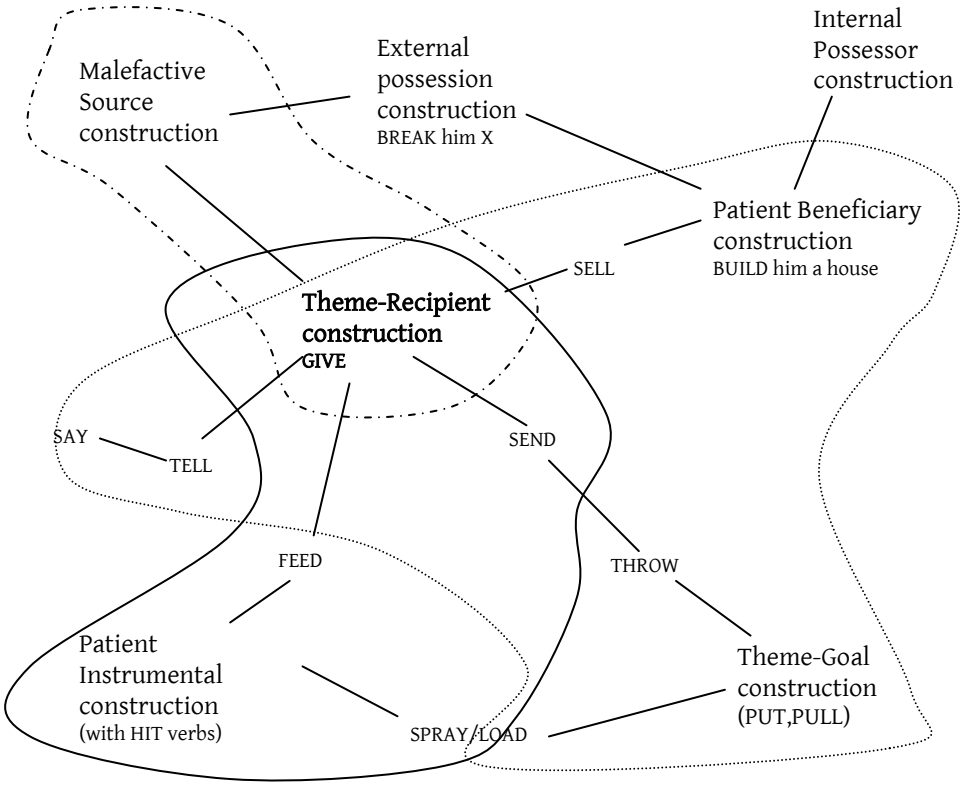

Figure 15. Basic ditransitive constructions in Jamul Tiipay, Finnish and Eskimo
Jamul Tiipay: neutral (DOC)
Finnish: allative extensions
Eskimo: instrumental extensions

Not all of the patterns are equally interesting. Thus restricted patterns with allative marking restricted to goals or benefactive markers to beneficiaries are expected, hence of little typological interest. Most interesting in this respect are

strategies with a broader application range, in particular those which show extensions into a different domain.

Above we have seen examples of such extensions in the domain of case-marking: Recall the instrumental extension that "spills over" to the goal domain in Eskimo and to the benefactive domain in Khanty, or the allative extension to the benefactive domain in Finnish, or the extension of the possessive strategy to recipients in Qiang. Such extensions are interesting as they allow us to check specific predictions embodied in the semantic map, subject to contiguity constraints: if a strategy spreads it will spread through continuous segments on the map. For example, if allative marking is found on 'give' it will be found on 'send' (cf. Finnish), or if instrumental marking is found on 'send' (cf. Eskimo) it will also be found with 'give', etc.

Semantic maps can also be profitably applied to areal typology, as they demonstrate areal and also genealogical variation in a specific domain (compare the semantic maps for experiential verbs in Daghestanian languages in Comrie & van den Berg 2006 and Ganenkov 2006). The map below shows the extensions of the Dative case across the verb types in two Nakh-Daghestanian languages, Bezhta and Chechen:

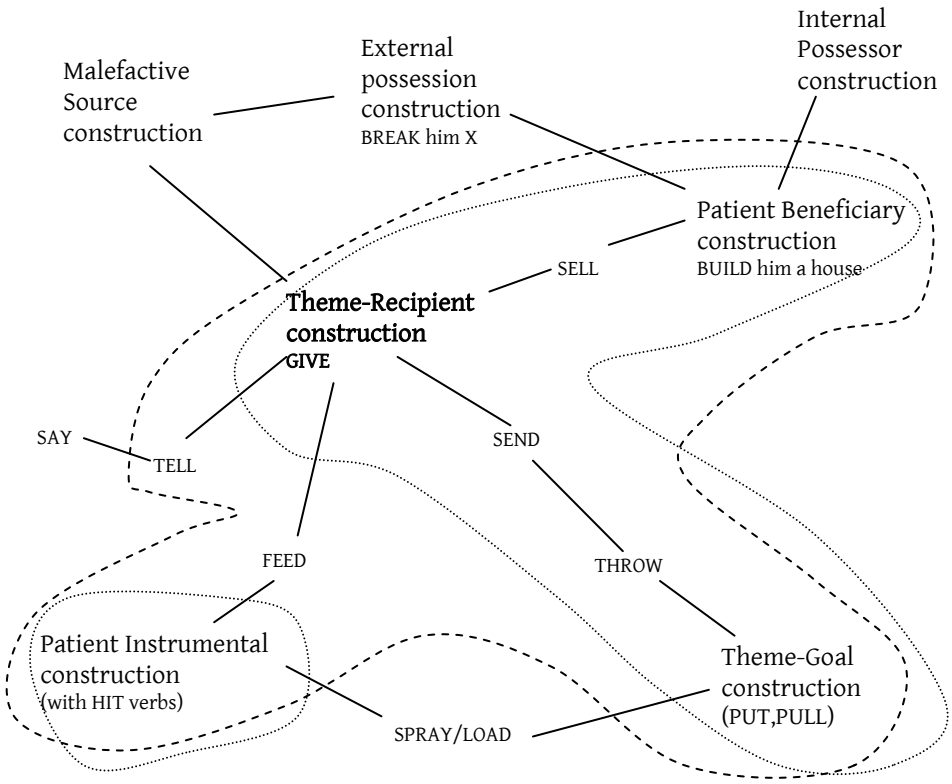

Figure 16. Extensions of dative encoding in **Chechen** (Zarina Molochieva, p.c.) and **Bezhta** (Zaira Khalilova, p.c.)
Chechen dative - - - -, Bezhta dative .....

Semantic maps, as used in both general typology and areal typology, also allow for a diachronic interpretation. This is also clear from the terminology used, as when one speaks of "extensions" of particular strategies in a ditransitive domain and views lexical differentiation in a ditransitive domain as a trade-off of different competing strategies spreading through the lexicon via analogical extension (cf.

also Haspelmath 2005b on diachronic instability and renewal of ditransitive patterns).

Thus, in general semantic maps provide a useful way to capture lexical variation in the ditransitive domain cross-linguistically, but also a powerful tool for restricting such cross-linguistic variation.

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