

Recording and explaining: exploring the German ditransitive alternation

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1. In the introduction to *Thinking Syntactically* (2006), Liliane Haegeman writes

that the goal of scientists is not merely taking note of and recording certain phenomena and thus ‘knowing’ about them: scientists want to explain the phenomena they have observed.

The argument that in linguistics, too, the ultimate goal is to explain linguistic phenomena rather than to merely record them, is particularly pertinent since the ‘quantitative turn’ in modern linguistics. In the wake of this turn, many scholars have laid great emphasis on amassing data, according to some critics – not only generative linguists – to the detriment of ‘real’ explanations. In this discussion note, we offer some thoughts on the relation between explanation and the extensive recording of data from a ‘moderate’ functional point of view. The paper takes the form of a case study in which we consider the variation in form and function of sentences with the ditransitive verb *geben* in present-day standard German. This is the subject matter of an ongoing corpus-based research project in the General Linguistics section of the Linguistics Department at Ghent University.

2. Our starting point is the common assumption that the only ditransitive construction in which *geben* occurs in the standard language is the Indirect Object Construction (henceforth: IOC) with the RECIPIENT coded in the dative and the THEME coded in the accusative, e.g.:¹

- (1) Diese Kommunikation gibt **den Bürgern**_{REC} ein Gefühl der Sicherheit_{THEME}.
‘This communication gives the citizens a sense of security.’

¹All example sentences are drawn from the 42-billion-word corpus DeReKo (Deutsches Referenz korpus, Mannheim) available at <http://www.ids-mannheim.de/cosmas2/>.

However, corpus research reveals that *geben* also occurs in the Prepositional Object Construction (henceforth POC): while the THEME is still coded in the accusative, the RECIPIENT is headed by the preposition *an*, which in this construction governs the accusative:

- (2) Kronauer will eine Liste mit allen Teilnehmern_{THEME} **an die Stadt**_{REC} geben.
'Kronauer wants to give a list of all participants to the city.'
- (3) Der Bund muss nicht direkt das Geld_{THEME} **an die Familien**_{REC} geben.
'The federal government does not have to give the money directly to the families.'

This finding contravenes the commonly held view that the IOC/POC alternation does not exist with *geben* in German, whereas the so-called 'dative alternation' is common with the corresponding verb in many Germanic languages (cf. Rappaport Hovav & Levin 2008, Haspelmath & Baumann 2013). Note, moreover, that the IOC/POC alternation is well-attested with other ditransitive verbs in German such as *übergeben* 'hand over', *zurückgeben* 'give back', *abgeben* 'pass, hand over', *schicken* 'send', *ausleihen* 'lend (out)', *senden* 'send', *übersenden* 'send', and so on. As a matter of fact, with morphologically complex *geben*-verbs there is no empirical evidence that one variant outnumbers the other.

In the last two decades a great number of formal, functional and cognitive studies have been devoted to the English dative alternation or 'dative shift', as it is commonly called in formalist scholarship. The focus has been on such verbs as *give*, *send*, *throw* and *sell*, which in English either occur in the 'double-object construction' (*He gave his 24-year-old son an allowance for spending money*) or the 'to-construction' (*He gave the newspaper to his 24-year-old son*). Research into the corresponding alternation in present-day German has been lagging behind (cf. Matzel 1976, Wegener 1985, Proost 2015). In this contribution we discuss some preliminary findings based on ongoing corpus-based research. We limit ourselves to observations on the simplex verb *geben*. Our study is confined to written language (DeReKo).

3. We conducted random searches in DeReKo in order to acquire sufficient data for a comparison of IOC and POC with *geben*, but because POC turned out to be much less frequent than IOC with this particular verb (approximately 4% of the occurrences), we turned to specific queries with the preposition *an* to arrive at a balanced data set. All sample sentences were annotated for a number of factors along the lines of existing corpus studies of the English dative alter-

nation (e.g. Bresnan 2007, Bresnan & Ford 2010). The factors in our study are: length difference (heaviness) and order of RECIPIENT and THEME, voice, pronominality, animacy, concreteness, specific verb sense (concrete, propositional, abstract, cf. below), idiomaticity, definiteness, discourse-givenness. The investigation follows up on previous research, which relates the alternation primarily to two well-established types of motivation: universally applicable processing constraints, in particular heaviness considerations (cf. Hawkins 1994), and information structure preferences (Thompson 1995, Bresnan 2007, Bresnan & Ford 2010, Rappaport Hovav & Levin 2008). According to Hawkins' principle of early immediate constituents, the orders T(HEME)-R(ECIPIENT) and R-T are determined by the relative weight of both objects, the heavier one tending to be placed after the lighter one (one of 'Behaghel's Laws'). Thompson's principle of 'topicworthiness' adds to this that more 'topicworthy' objects tend to be placed before less 'topicworthy' ones, with topicworthiness defined as 'a cluster of properties' that influence the packaging of information with regard to the likelihood of a noun phrase being the topic of discussion (Thompson 1995). Thus, pronominal, animate, definite, specific, identifiable, given and short objects are taken to be associated with referents that are more topicworthy than inanimate, indefinite, non-specific, non-identifiable, new and long objects. Based on this topicworthiness principle, IOC with R-T order is expected to occur mainly with topicworthy RECIPIENTS whereas POC with T-R order mainly with topicworthy THEMES.

The analysis of N = 1341 sentences with the verb *geben* reveals that 95,5% of the IOC sentences have R-T order and 4,5% T-R order (712/33) while 99,5% of the POC sentences have T-R order and 0,5% R-T order (594/2). Although German has a relatively free word order compared to English, the correlation between each variant and a specific order of the two objects is nevertheless very similar for *give* and *geben*. Logistic regression analysis further shows that the IOC/POC alternation is significantly associated with multiple factors in German (cf. De Vaere et al. 2018). POC is positively associated with RECIPIENTS that are longer than the THEME, collective RECIPIENTS (e.g., *Familie* 'family', *Präsidium* 'executive committee', *Chor* 'choir') and RECIPIENTS that can designate both concrete locations and institutions in the abstract (e.g., *Polizei* 'police', *Ministerium* 'government department, ministry') while the THEMES are generally discourse-given or at least accessible, often pronominal and they tend to designate concrete objects or propositional contents. There is also a significant correlation of POC with passive voice. Conversely, IOC is positively associated with discourse-new and abstract THEMES and with pronominal, discourse-given and animate RECIPIENTS that are shorter than the THEME. Representative corpus-extracted examples of IOC and POC are

(4) and (5), respectively:

- (4) "Der Sieg gegen Tim Henman hat **mir**_{REC} viel Selbstvertrauen_{THEME} gegeben", sagte Schüttler.
'The victory over Tim Henman gave me a lot of confidence', Schüttler said.'
- (5) Wir werden unseren Bericht_{THEME} in der ersten Januar-Hälfte **an das Präsidium**_{REC} geben.
'We will deliver our report to the Bureau in the first half of January.'

We also found that one particular use of *geben* in combination with *an* (occasionally also *in*, *auf* or *über*) is strictly confined to POC, viz. when it is used as a phrasal verb in the sense 'add an ingredient to' in the context of preparing food, but in this case the prepositional phrase is not a RECIPIENT argument; (6) is an example:

- (6) Gewürfelte Zwiebeln können roh oder mit heißer Brühe übergossen **an den Salat** gegeben werden.
'Diced onions may be added to the salad raw or doused with hot broth.'

Overall, the findings for German *geben* show interesting parallels with the English dative alternation. Predictions in terms of the traditional heaviness considerations and information structure preferences are largely borne out by the *geben* data. Hence, an appropriate quantitative approach, which is able to uncover correlations between various factors, already goes beyond the stage of mere data recording. It supplies us with explanatory clues which are not readily accessible to introspection, bringing to light regularities that would otherwise for a large part remain hidden. Furthermore, given that the research results for *geben* partly match those for *give* (similar results have been obtained for other Germanic languages, e.g. Dutch, Danish and Swedish), the outcome of this part of the study points to fairly strong general tendencies across Germanic languages with regard to the alternation at hand.

4. It would however be premature to conclude that the above quantitative analysis, indispensable though it may be, provides a full explanation of the data. Not surprisingly, a number of functionally oriented approaches to the English dative alternation, which have gained widespread recognition in recent decades, have sought to determine specific semantic and/or pragmatic differences between the two variants. For instance, in Goldberg's Construction Grammar approach the alternation in English is analyzed in terms of two different argument structure constructions and three different senses. The double-object

construction is assigned the construction meaning 'successful caused possession' (X CAUSES Y TO RECEIVE Z, e.g., *John gave Mary an apple*). It is contrasted with the 'transfer-caused-motion construction' (e.g., *John gave an apple to Mary*) which Goldberg calls a 'prepositional paraphrase' of the double-object construction but semantically a metaphorical extension of the 'caused-motion construction' (X CAUSES Y TO MOVE Z, e.g., *Joe kicked the bottle into the yard*) (Goldberg 1995, 2006). An alternative account is proposed in Rappaport Hovav & Levin (2008)'s verb-sensitive approach. They argue that with a verb such as *give* both the double-object construction and the *to*-construction convey 'successful caused possession' because of the verb's inherent meaning. By contrast, verbs such as *send* and *throw* convey 'caused possession' in the double-object construction but 'caused-motion' in the *to*-construction. Moreover, any successful transfer inference is not determined by the meaning of the construction but by the meaning of the verb (e.g., by *give* and *sell* but not by *send*, *throw*, *kick* or *teach*).

It is not possible within the confines of this contribution to expound in detail to what extent these accounts of the English alternation can be applied to German. However, careful analysis of the data shows that this is possible only to a very limited extent. It is imperative that due attention be paid to language-specific properties of the alternation, for the following reasons. First, German possesses a fully-fledged system of morphological cases, which are found only in remnants in English. Note that the double-object construction also exists in German but it occurs with only a handful of verbs that take two objects in the accusative (e.g., *lehren* 'teach') and the construction is not confined to ditransitive verbs (compare *nennen* 'call someone something'). Moreover, in German various prepositions (*in*, *auf*, *nach*, *zu*, *an*) are used to designate places in POC, often corresponding to the single preposition *to* in English. Second, while in English the dative alternation is co-extensive with R-T order and T-R order, this is different in German. Above we pointed out the strong correlation of IOC with R-T order and POC with T-R order in sentences with *geben*, but it appears that *geben* is rather exceptional in this respect among German ditransitive verbs. (This is perhaps less surprising in view of the fact that the morphosyntactic behaviour of 'give' is notoriously special from a cross-linguistic and typological point of view, cf. Kittilä (2006)). In a random sample of 3353 sentences with 10 alternating ditransitive verbs other than *geben*, IOC is attested with R-T order in 67% of the cases against 33% for T-R order (1094/533). With POC, T-R order accounts for 96%, R-T order for 4% of the occurrences (1663/63). Thus, IOC regularly occurs with both object orders, unlike POC. Thirdly, while in English not only *give*-type verbs and *send*-type verbs but also *throw*-type verbs (*throw*, *shoot*,

kick, slap etc.) partake in the alternation, the corresponding verbs in German (*schmeißen, werfen, schießen, treten, stoßen* etc.) occur in POC but not IOC. Only few morphologically complex throw-type verbs such as *zuwerfen* 'throw at, pass' and *hinwerfen* 'throw at' occur in IOC (cf. Croft et al. (2001)). Finally, with English *give*-type verbs the preposition *to* only takes animate complements but not inanimate complements that designate places (*give something to Berlin/the church/the bureau* etc. are acceptable only metonymically, cf. Rappaport Hovav & Levin 2008). By contrast, with German *geben*-verbs (*geben, übergeben, zurückgeben, abgeben, weitergeben* etc.) *an* can take animate or inanimate complements. It is obvious that these differences between the two languages have to be taken into account when considering functional contrasts between IOC and POC in German.

5. The results of our case study can be summarized as follows. The IOC/POC alternation in German (with whatever verb) is clearly situated at the syntax/ semantics/ pragmatics interface, with ramifications into language processing. It is therefore necessary, both with regard to the alternating constructions and the verbs that instantiate them, to distinguish 'encoded' meanings from senses that are not encoded but 'inferred', including those senses that obtain by default in normal language use (for the distinction between 'encoded' meanings and 'inferred' senses, including generalized conversational implicatures, cf. Coseriu (1975), Grice (1989), Levinson (2000), among others).

Under this view, a first conclusion is that the IOC/POC alternation in German cannot be explained in terms of a dichotomy between two independent constructions with contrasting encoded meanings. The analysis of the data shows that it is not an encoded semantic property of POC to convey 'caused motion', nor of IOC to convey '(successful) caused possession'. In this respect, the results of our study square with Rappaport Hovav & Levin (2008)'s view that the dative alternation in English does not alter the 'caused possession' reading if the verb itself, e.g. *give*, lexicalizes 'caused possession'. However, on the basis of the German data we have to go one decisive step further.

On the one hand, the encoded lexical meaning of *geben* appears underspecified with regard to the three major conventionalized senses (concrete, propositional and abstract transfer, cf. Bresnan et al. (2007)) and any specific subsenses that occur in the data (e.g., 'hand over' is a subsense of the concrete sense, on a par with 'administer', 'transmit', and so on). *Geben* does not express concrete transfer in the majority of the occurrences. Propositional and abstract transfer are equally frequent, but the concrete sense is more often attested in POC, as in (7), whereas the abstract sense is favoured in IOC, as in (8); the propositional

sense regularly occurs in both variants, (9).

- (7) Sie können die CD dann vervielfältigen und **an die Schulen** geben.
'You can then make copies of the CD and give them to the schools.'
- (8) Hier wird **den Schülern** die Gelegenheit gegeben, mit Zeitzeugen zu diskutieren.
'Here the students are given the opportunity to discuss with eyewitnesses.'
- (9) a. Ein Zeuge beobachtete ihn und gab **der Polizei** Tipps.
'A witness watched him and gave tips to the police.'
b. Hier konnte Hebisch einen guten Tipp **an die Kameraden** geben.
'Here Hebisch was able to give a good tip to the comrades.'

It would be begging the question to construe the uses of *geben* in the abstract (8) and propositional (9) senses from a putative concrete 'core sense' (7). However, 'caused possession' is no encoded feature of *geben* either. A state of 'possessing something' is not necessarily intended in ditransitive uses of *geben*, compare:

- (10) Der Kartensitz und Spielverlauf geben **dieser Hoffnung** keine Chancen.
'The hand of cards and the course of the game give this hope no chance.'
- (11) [Ich] sehe gute Chancen, **der Wirtschaft** die dringend benötigten Impulse zu geben.
'I see good opportunities to give much-needed impetus to the economy.'

Rather than invoking figurative extensions on apriori grounds (cf., e.g., Newman (1996)), which have little support in the data, we argue that the underspecified encoded meaning of *geben* is best paraphrased as a general three-place 'transfer' meaning with no specification as to the features 'possession', 'path', and 'transfer modality', in contrast to other core three-place verbs such as *schicken*, *senden*, *liefern*, *schenken*, and complex *geben*-verbs.

On the other hand, the corpus investigation also shows that in German, IOC and POC are not exclusively dedicated to their functions in the ditransitive alternation. 'An AGENT transferring an entity to a RECIPIENT' is but one event type both variants can designate, which we take as evidence that this three-participant frame is not their encoded meaning but one of their possible senses. Building on typological research of the ditransitive construction (Kittilä 2006, Malchukov et al. 2010, Bickel 2011, Haspelmath 2013 among others), we therefore stress the need to analyze the alternation in terms of a more general configuration (cf. Stefanowitsch 2011) on the systemic level of German grammar. This schematic con-

figuration combines three semantic roles, viz. an AGENT, a THEME, and a GOAL, to a three-argument pattern. IOC and POC have the status of 'allostructions' (cf. Cappelle (2006)) that instantiate this configuration rather than being independent constructions in the grammar (unlike the English double-object construction, which has an encoded ditransitive meaning, if previous analyses are correct); nor can one allostruction be considered more 'basic' than the other. The two allostructions are moreover partly in complementary distribution in German: *give*-type verbs and *send*-type verbs occur both in IOC and POC but *throw*-type verbs occur in POC (with the exception of a small number of morphologically complex verbs such as *zuwerfen*, *hinwerfen* etc.). Furthermore, whereas the GOAL is a spatial goal (DESTINATION) with *throw*-type verbs, it is either a spatial goal or a possessional goal (RECIPIENT) with *give*-type verbs and *send*-type verbs.

Importantly, the occurrences of IOC and POC are no realizations on a one-off basis. Their uses reflect the pervasive role of a handful of conventionalized senses, which in turn correlate with various morphosyntactic, semantic and pragmatic factors as well heaviness constraints. These correlations concur to establish observable, albeit non-exclusive, tendencies in language use which, although no rules of grammar, are indispensable to understand why on a particular occasion of language use one variant is likely to be chosen whereas the other one is more or less strongly dispreferred. For instance, the tendency for IOC to occur with the abstract transfer sense of *geben* in combination with an abstract THEME and an animate RECIPIENT contrasts with the no less notable tendency for POC to occur with the concrete or propositional transfer sense of the verb in combination with a RECIPIENT that either designates a collective entity or allows for both a concrete locative or an abstract institutional reading (e.g., *Ministerium* 'government department, ministry').

6. In conclusion, the level of normal language use, situated in between the language system and actual instantiations of language use, is key to a layered account of the alternation (cf. Coene & Willems 2006). This level straddles the stringent dichotomous competence-performance distinction and accounts for observable tendencies in the data which can neither be fully explained in terms of lexico-grammatical rules nor be reduced to mere performance phenomena. It is only by charting their always dynamic but partly conventionalized features in a representative set of naturally occurring sentences that the complex functional interplay of IOC, POC and verbs such as *geben* can be explained in a comprehensive way.

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