Conflict resolution in syntactic theory[1]

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ABSTRACT

The paper investigates conflicts that arise in syntactic description and the resolutions of these conflicts. I will identify four logical possibilities of resolving conflicts and will cite examples from the syntactic literature for each. I will further be suggested that conflict resolution is a common goal of otherwise different linguistic theories in and outside syntax, and that it goes a long way towards motivating argumentation in other sciences and in everyday discourse as well. The basic theme of the paper is that just as the study of languages provides a window into human cognition, so does the study of metalanguages - the conceptual apparatus employed by linguists in describing languages. Partonomy (whole-part relations) and taxonomy (type-subtype relations) will be represented as shared tools across various domains of human thought, with both relations serving a shared goal: resolving conflicts.

KEYWORDS

conflict, conflict resolution, syntactic theory, canon, prototype, partonomy, taxonomy

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1. Introduction

Grammars provide a twofold insight into human cognition. On the one hand, they offer a glimpse into how speakers perceive and interpret the world. On the other hand, they reveal how linguists in turn perceive and interpret a sub-domain of the world: language. The terms and relations that grammatical descriptions are couched in reflect the problems that the analysts have identified and the conceptual tools that they have brought to the task of solving them.

This paper will take up one type of problem that linguists encounter when describing languages and will analyze the ways in which they come to terms with it. This problem is mismatch.

Mismatch phenomena have been central to much of recent work in syntax and in linguistics in general. They involve patterns that are at odds with each other. In the literature, mismatches have also been referred to as instances of "inconsistency", "incongruity", "asymmetry", "anomaly", "paradox", "counterexample", "exception", "deviation", and "conflict".[2] The editors of a recent topical volume highlight the significance of this phenomenon: "Mismatch phenomena challenge our conceptions

[2] On conflicts in grammar, see Natural Morphology (e.g. Dressler et al. 1987), unification-based approaches (cf. Shieber 1986, Jackendoff 1997, 2002), Optimality Theory (e.g. McCarthy 2008), the work of the Surrey Morphology Group (e.g. Baerman et al. 2007, 2010), Corbett's extensive work on agreement patterns (e.g. Corbett 2006, Chapter 8), and analyses of exceptions, such as Simon and Wiese (ed.) to appear and Hudson to appear.

of grammar and are thereby of vital importance for the development of grammatical architectures." (Francis and Michaelis 2003: 5) They also raise a number of questions about conflicts, including the following: "How are mismatches constrained and what theoretical mechanisms can best capture these constraints?" (13)

It is these questions that I wish to address. By taking up a selected sample of syntactic descriptions, my goal is to provide a systematic overview of the kinds of conflicts that have been identified in the literature and the ways in which they have been resolved. I will make the following points:

(A) Conflicts may be reduced to contradictions; resolving conflicts thus amounts to resolving contradictions.

(B) There is a limited set of logically possible ways of resolving contradictions. Solutions to conflicts put forth in the syntactic literature illustrate each of the basic types.

(C) In the syntactic literature, two of the basic conceptual tools facilitating conflict resolution are partonomy (whole-part relations) and taxonomy (type-subtype relations).

(D) Conflict resolution may be a goal common not only to various syntactic and other linguistic theories, but also

to theories in other sciences and to everyday reasoning; partonomy and taxonomy are in turn shared tools in the service of this shared goal across all of these domains.

As the first example of a conflicted construction, Section 2 will discuss ditransitive sentences and some of their analyses in the literature. Section 3 identifies four logically possible ways of resolving conflicts. Section 4 surveys various proposals for conflict resolution in syntactic theory; it will be shown that they exemplify each of the four types discussed in Section 3. In Section 5, we will cast a brief glance at conflicts in other areas of linguistics, in other sciences and in everyday thinking; Section 6 is a wrap-up.

2. Ditransitive constructions

2.1. *The problem*

The examples of English ditransitive constructions in (1) and (2) illustrate the problem:

(1) a. *Peter gave a book to Mary.*
    b. *Peter gave Mary a book.*

(2) a. *The trainer showed a new trick to the dog.*
    b. *The trainer showed the dog a new trick.*

As these examples illustrate, the basic ditransitive function may be represented in two ways. The two post-verbal structures are shown in (3).[3]

(3) a. Recipient as Prepositional Phrase:
NP *to* NP
Theme Recipient

b. Recipient as Noun Phrase:
NP NP
Recipient Theme

Taken by itself, the availability of two expressions for the same meaning is not a problem. However, it does become one if we view it from the angle of the principle of isomorphism as a canonical meaning-form relation. The term isomorphism, current in mathematics, chemistry and biology, has been employed by Haiman (1985: 21-70) in reference to a one-to-one relation between meaning and form; in other words, to the absence of both synonymy and ambiguity. Here is the summary of the problem.

(4) a. DITRANSITIVE CONSTRUCTIONS
M has F1, and
M has F2.

b. ISOMORPHISM
M may have either F1, or F2, or neither, but not both F1 and F2.

/M = a meaning
F1, F2 = distinct forms/

[3] (3b) is commonly known as the double-object construction. In typological work (cf. Malchukov et al. (2007)), (3a) is referred to as the indirective construction and (3b) as the secundative construction. Bresnan and Nikitina (2009) dub them as dative-PP and dative-NP, respectively.

How can this conflict[4] be resolved? As will be shown below, a survey of the literature on ditransitives reveals two types of accounts. In one approach, the two forms that express one meaning are analyzed as having one underlying form (this term interpreted differently depending on the framework). According to the other approach, the one meaning expressed by the two forms is analyzed into two meanings. Either way, the skewed meaning-form relation of synonymy is canceled.

Before we begin to look at examples of the two kinds of solutions, two qualifications need to be noted. First, the choice of the accounts is neither comprehensive nor systematic: only a few analyses will be discussed from the vast literature; others could equally well have been chosen in addition or instead. Second, the sample analyses may not be optimal accounts. Even the very issue of whether a set of data does or does not pose a conflict is negotiable: it may be seen as involving a conflict by one analyst but not by another. One of the revealing benefits of studying conflicts is the realization that conflicts have no uncontestable status in reality: whether

[4] There are also other ways in which these constructions show mismatches, having to do with the syntactic properties of the two verb complements and with the correspondence between grammatical functions and semantic participant roles; see for example Hudson (1992). For analyses of ditransitive constructions across languages, see Haspelmath 2005, the abstracts from the 2007 conference on ditransitives at the Max Planck Institute in Leipzig (www.eva.mpg.de/lingua/conference/07_DitransitiveConstructions), and Malchukov et al. (2007).

a state of affairs does or does not represent a conflict depends on the factual and theoretical assumptions adopted. This was already noted above: synonymy is a problem only if we expect an isomorphic, one-to-one relationship between meaning and form; if there is no such expectation, there is no conflict. In the following survey, we will take a state of affairs to be conflicted if the analyst sees it that way regardless of whether this position is or is not defensible on other grounds. Thus, we will not be concerned with the adequacy of the analyses; what will be of interest is just the conceptual approach taken to resolving a perceived conflict.

2.2. *Solutions*

2.2.1. *The two forms are one form*

As is well-known, some versions of generative grammar have argued that the two superficially distinct forms of ditransitives are the same one form in underlying structure. A historical example comes from Jacobs and Rosenbaum (1968: 143-148), where the single deep structure posited for both structures is the Recipient-as-PP construction. An optional transformation – Dative Movement – applies to it to yield the Recipient-as-NP version.

(5) NP V NP_1 *to*-NP_2 → NP V NP_2 NP_1

Several other approaches have also proposed a single underlying form for the two constructions, such as Perlmutter and Postal's Relational Grammar account (1983: 93), Dryer (1986: 821-823), Larson (1988), and Starosta's Lexicase framework (1996: 241).

These accounts thus soften the one-meaning-two—forms conflict by proposing that the two forms are different only on the surface level but are the same on an underlying level. Thus, underlyingly, the biunique meaning-form relation is restored: one meaning, one form.

2.2.2. *The one meaning is two meanings*

In an attempt to restore the isomorphic, one-to-one relationship between meaning and form in distransitives, the other tack taken in the literature has been to accept that there are indeed two distinct forms but to argue that the single meaning associated with the two forms is actually two different meanings.

Frameworks that posit meaning distinctions between the two constructions include Dik's Functional Grammar, Goldberg's Construction Grammar, Langacker's Cognitive Grammar, and Hale and Keyser's Minimalist account. The general point that these analyses make is that the meaning of a sentence is not composed

solely of the meaning of the predicate and the semantic roles of its arguments: there is also a pragmatic component and this differentiates the meanings of the two ditransitive constructions.

Dik's proposal is that the two constructions differ in perspective, or vantage point. While in both cases, the primary perspective is assigned to the subject, the difference is due to whether the secondary perspective – that of the direct object - is assigned to the Theme (or Goal, in Dik's terminology) or to the Recipient (Dik 1997: 64-65, 247-250, 253-254, 279-280). Similarly, Goldberg sees the difference in information structure, or construal: whether it is the Theme or the Recipient that is topical (e.g. 2006: 26-33, 137-143, 155-165, 198-201).

In a like vein, Langacker differentiates between the two meanings in terms of conceptual image (Langacker 2008: 393-394, 520). Consider his examples:

(6) a. *Bill sent a walrus to Joyce.*

b. *Bill sent Joyce a walrus.*

According to Langacker, in (6a), the preposition *to* highlights the path followed by the walrus. In (6b) in turn, the juxtaposition of Recipient and Theme iconically represents the

possessor-possessed relationship between the two.[5]

Hale and Keyser's description framed by the Minimalist Program also recognizes a difference in meaning between the two constructions. Adopting an earlier observation by Oehrle, they (2002: 177-178) point at the ambiguity of sentences like *Nixon gave Mailer a book*, which may mean an actual transfer of the book by Nixon to Mailer or that Nixon's doings prompted Mailer to write a book, and they show that the Recipient-as-PP version – *Nixon gave a book to Mailer* – has only the first (transfer) meaning. This meaning distinction, too, may be due to the different conceptual image involved in the two structures.[6]

In sum, these accounts take a close analytic look at meaning and split what appears to be a single meaning into two components: truth-functional semantics as provided by argument structure, and the pragmatic overlay of perspective, information structure, or conceptual image. The pragmatic component differentiates the two otherwise equivalent interpretations. In this way, they restore the biunique relationship between meaning

[5] Robert Van Valin's analysis in Role and Reference Grammar and Peter Culicover's in Natural Language Syntax take similar routes (Van Valin 2007: 43-53, Culicover 2009: 193-194, 230-231). Earlier accounts along the same lines were proposed by Erteschik-Shir (1979: 443-449) and Givón (1984: 153-157). Bresnan and Nikitina (2009) identify different discourse conditions for the two versions. For meaning differences between alternative expressions of ditransitive constructions in other languages, see Malchukov et al. (2007). For additional literature references regarding the semantic equivalence versus non-equivalence of the two constructions, see Bresnan & Ford 2010: 170-171).

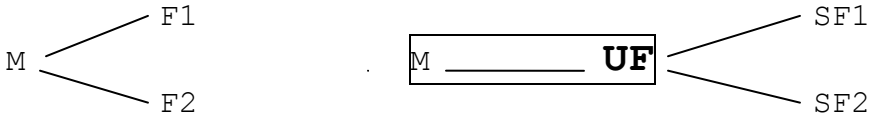
[6] For another Minimalist analysis of ditransitives, see Anagnostopoulou 2003.

and form in the two constructions: two forms, two meanings.

In sum: the above survey shows that solutions to the synonymy of ditransitive constructions offered by the literature fall into two types: some attempt to show that the two forms are, on some level, a single form; others argue that the one meaning is, on some level, two distinct meanings[7]. As conceptual tools, both involve partonomy and taxonomy: one entity – a form or a meaning – is re-visualized as two entities that are then assigned to distinct types. The problem and the two solutions are summarized in (7) and (8), with the boxed segments highlighting the restored isomorphic, one-to-one relation between meaning and form.

(7) THE TWO FORMS ARE ONE FORM

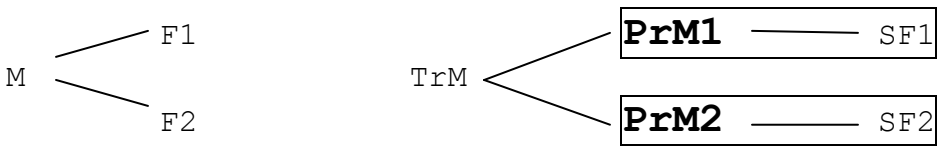
Problem: Solution:



/UF = underlying form
SF1 and SF2 = distinct surface forms/

(8) THE ONE MEANING IS TWO MEANINGS

Problem: Solution:



[7] For a thoroughgoing, comprehensive, and highly convincing account of the various semantic and syntactic properties of Theme and Recipient that influence the choice between the two constructions – such as complexity, definiteness, animacy, and others – see Bresnan and Ford (2010).

/TrM = the semantic (truth-functional) component of meaning
PrM1, PrM2 = semantically equivalent meanings differentiated by a pragmatic component/

Ditransitive constructions are just one instance of perceived sentence synonymy; active-passive pairs and the alternative forms of verb-particle constructions have also been analyzed as synonymous in some accounts. Examples are in (9) and (10).

(9) a. *The boy milked the cow.*

b. *The cow was milked by the boy.*

(10) a. *The tourists checked out the rail system.*

b. *The tourists checked the rail system out.*

Just as in the case of ditransitives, the perceived synonymy relation in these pairs of constructions has been accounted for in the literature in the two ways diagrammed in (7) and (8). Some accounts restore the one-meaning-one-form pattern by positing a single underlying form for the two sentences (as in early versions of Transformational Grammar; e.g. Chomsky 1957: 42-43 for actives and passives, and Jacobs and Rosenbaum 1968: 105-106 for the two verb-particle constructions), while others accept the two forms as distinct but show that there are two

pragmatic meanings involved.[8] These two approaches thus emerge as common, cross-constructionally applicable solutions to apparent syntactic synonymy.

As was shown in (4) above, the problem surrounding English ditransitive constructions and other synonym pairs boils down to a **conflict**: the one-to-many meaning-form linkage clashes with the principle of isomorphism. The logical structure of this problem can be represented as a **contradiction**. Here is a schema of contradictions.

(11) a. OBSERVATION
A has X and
A has Y.

b. THE PRINCIPLE OF NON-CONTRADICTION[9]
A may have either X, or Y, or neither, but not both X and Y.

/A = an entity
X is a property; Y is not-X/

The synonymy problem shown in (12) (repeated from (4)) is an instance of (3):

(12) a. SYNONYMY

[8] For pragmatic differences between actives and passives, see Langacker (2008: 521-522) and between the variants of verb-particle constructions, see Dehé (2002).

[9] The principle of non-contradiction goes back to Aristotle: "It is impossible for the same attribute at once to belong and not to belong to the same thing and in the same relation… This is the most certain of all principles…" (*The Metaphysics*, IV. iii. 1005b) In this paper, I will make no distinction between contrary and contradictory relations.

M has F1 and
M has F2.

b. THE PRINCIPLE OF ISOMORPHISM
M may have either F1, or F2, or neither, but not both F1 and F2.

/M = a meaning
F1 and F2 = distinct forms/

If synonymy involves a contradiction, then resolutions of synonymy should correspond to resolutions of a contradiction. To see this, let us consider how contradictions in general may be resolved and how the solutions for synonymy seen above relate to these possibilities.

Since a contradiction involves two incompatible predicates stated for a single subject, there are two obvious resolutions.

(13) a. RE-ANALYZING THE SUBJECT
A is not one entity but two; thus,
instead of: **A** has X and
A has Y,
there is: **B** has X and
C has Y

b. RE-ANALYZING THE PREDICATES
X and Y are not two predicates but one; thus,
instead of: A has **X** and
A has **Y**,
there is: A has **W**

The two solution types for synonymy surveyed above are special cases of these two ways of resolving contradictions. This is shown in (14).

(14) a. RE-ANALYZING THE SUBJECT

M is not one meaning but (pragmatically) two; thus,
instead of: **M** has F1 and
M has F2,
there is: **M1** has F1 and
M2 has F2

b. RE-ANALYZING THE PREDICATES
F1 and F2 are not two forms but (underlyingly) one; thus,
instead of: M has **F1** and
M has **F2**,
there is: M has **F3**

Note that, as was mentioned above, both resolutions involve the conceptual device of **splitting** a whole into parts and **classifying** the resulting parts: either analyzing a single semantics into two pragmatically distinct meanings, or analyzing a single form into two underlyingly distinct representations.

The two ways of resolving contradictions given in (13) do not exhaust the range of logically possible conflict-resolution strategies. In the next section, we will consider additional options and in Section 4, we will examine other examples of conflicts in syntax to see how the proposed resolutions illustrate these possibilities.

3. Logical possibilities of resolving conflicts

In addition to the two ways seen above, there are two further obvious alternatives for resolving contradictions. (15) provides an extended list including the two options discussed above (A/ and B/).

(15) A/ Re-analyzing the one subject as two

B/ Re-analyzing the two predicates as one

C/ Contextualizing the two statements

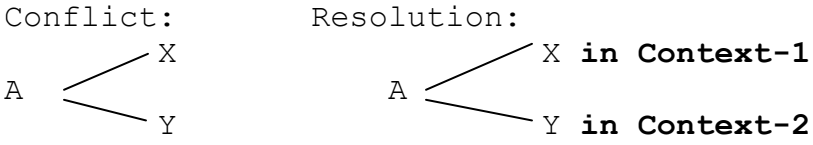
D/ Disregarding one or both statements

Here are diagrammatic illustrations of the four options.[10]

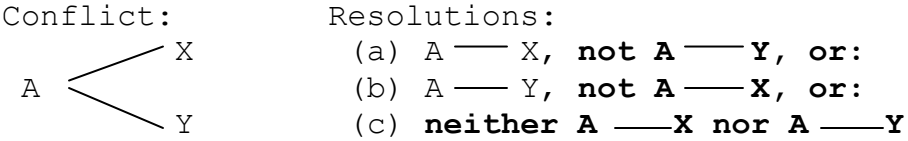
(A) Re-analyzing the subject (A is replaced by B and C)

(B) Re-analyzing the predicates (X and Y are replaced by W)

(C) Contextualizing the two statements



(D) Disregarding one or both statements



Let us see the details of these options along with examples

[10] For a similar survey of logically possible conflict-resolving strategies, see Moravcsik 2006b, Chapter 2.

from everyday reasoning. The assumptions that give rise to the conflicts in these examples are the following:

(a) An object cannot have two different colors.

(b) A person cannot live at two different addresses.

(A) Re-analyzing the one entity as two entities...

(a) ...BY SPLITTING IT INTO **TWO DISTINCT PARTS**

Example:
CONFLICT: Lizards are both green and brown.
RESOLUTION: Lizard heads are green and lizard bodies are brown.

(b) ...BY SPLITTING IT INTO **TWO KINDS**

(aa) The one entity is re-analyzed into **two individuals.** The idea is based on the **referential homonymy** of the subject: a case of "mistaken identity".

Example:
CONFLICT: Jim lives at 12 Plum Street and at 13 Cherry Street.
RESOLUTION: Jim Wolf lives at 12 Plum Street and Jim Fox lives at 13 Cherry Street.

(bb) The one entity is re-analyzed into **two subclasses**

Example:
CONFLICT: Lizards are both green and brown.
RESOLUTION: Young lizards are green and mature lizards are brown.

(cc) The one entity is re-analyzed into **two classes**

Example:
CONFLICT: Lizards are both green and brown.
RESOLUTION: Lizards are green and (what looks like lizards but is really) snakes are brown.

(B) Re-analyzing the two predicates as one predicate...

(a)...BY SHOWING THAT THE TWO PREDICATES ARE **REFERENTIALLY SYNONYMOUS**

Examples:
(i)CONFLICT: Jim lives at 12 Plum Street and at 13 Cherry Street.
RESOLUTION: Jim lives in a building which has two entrances: one at 12 Plum Street and the other at 13 Cherry Street.

(ii) CONFLICT: Lizards are both green and a mixture of blue and yellow.
RESOLUTION: Lizards are green, which is the same thing as the mixture of blue and yellow.

(b)...BY SUBSUMING THE TWO PREDICATES UNDER **ONE GENERAL PREDICATE**
Example:
CONFLICT: Lizards are both green and brown.
RESOLUTION: Lizards are of dark colors.

(C) Contextualizing the two statements
This involves accepting both statements as true but as holding under different conditions.
Example:
CONFLICT: Lizards are both green and brown.
RESOLUTION: Lizards are green in daylight and brown in artificial light.

(D) Disregading one or both statements[11]
Example:
CONFLICT: Lizards are both green and brown.
RESOLUTIONS:
(a) Lizards are green, not brown. OR:
(b) Lizards are brown, not green. OR:
(c) Lizards are neither green nor brown.

Let us now take a closer look at the solutions to synonymy surveyed above. One solution was the re-analysis of the one meaning into two. This corresponds to (Aa) above, where the

[11] Two qualifications to the typology of conflict resolutions given above have been offered by Kertész and Rákosi (p.c.). First, some of the modes of resolution may be analyzed in more than one way. For example, in (A)(b)(cc) above, the one entity: lizards, is split into two types: lizards and snakes. This may also be viewed as a subtype of (D)(b): dropping one of the two statements. Second, note that the choice of conflict resolution options depends on the kind of entity involved: whether it refers to individuals or classes of individuals. Thus, for instance, splitting an entity into two parts ((A)(a) above) is applicable to individuals, but splitting the entity into two subclasses or two separate classes is possible only if the entity refers to a class of things.

entity – a lizard – is split into two distinct parts: head and body, and each is assigned to one of the two contradictory predicates. In the case of synonymy, the entity 'meaning' was split into two parts: truth-functional and pragmatic, leading to the differentiation of two semantically equivalent but pragmatically distinct meanings associated with the two forms.

The other solution involved re-analyzing the two forms into one underlying form. This corresponds to (Bb), where the different colors: green and brown, were subsumed under 'dark color'.

As pointed out at the end of Section 2.2.2, in both cases, the crucial conceptual tools are partonomy (or meronomy, i.e. – whole-part relations) and taxonomy (type-subtype relations). Partonomy is involved in splitting forms into two parts; and classifying them as underlying and surface forms is a taxonomic decision. Splitting meanings into two meanings is a partonomic step; their differentiation by their pragmatic component is taxonomy.

In what follows, we will consider cases of perceived conflicts in syntactic description outside synonymy. Once again, we will not be concerned with the adequacy of the solutions but only with the approaches taken to resolving the perceived conflicts. As we will see, the literature yields examples for each of the four basic types of conflict resolution surveyed

above.

Most of the examples that will be discussed involve cases where specific instances are at odds with the general pattern: they are exceptions to it. Depending on the nature of the general pattern, such conflicts belong into two types. On the one hand, a conflict may arise between frequent and infrequent, typical and marginal. Following the relevant literature (e.g. Taylor 1998), we will refer to such general patterns as **prototypes**.

On the other hand, the general pattern that an individual fact is at odds with may be an idealized concept: the simplest instance of a pattern. It may not be the most commonly occurring instance and it may in fact never even occur at all. Isomorphism is an example: the biunique relationship between meaning and form is not prototypical in language. Following Corbett (e.g. Corbett 2006), such idealized manifestations of a pattern will be referred to as **canons**.

Prototypes are based on empirical observations: they are inductively arrived at. Canons are in turn defined by *fiat*: they are deduced from the definition of a pattern coupled with the analyst's desire to seek simplicity in the data and then to use the canonical pattern as a point of reference to calibrate deviations from it. While the basic property of a prototype is the empirical fact of **frequency**, the basic property of a canon

is a desideratum of the analyst: **simplicity**. Although a pattern may be both frequent and simple, prototypes are frequent by definition but not necessarily simple, while canons are simple by definition but not necessarily frequent[12]. While prototypes form reference points for assessing the varying frequencies of the different instances of a construction, canons form reference points for assessing the varying degrees and kinds of complexity among them.

The conflicts that will be discussed are "soft conflicts". This is because neither the prototypes nor the canons are axiomatic and therefore, departures from them do not involve a strict logical contradiction. Deviating instances may be unexpected either because they are less frequent than the prototype or because they are more complex than the canon; but neither prototypes nor canons logically exclude non-prototypical and non-canonical instances. In what follows, the general patterns, whether based on a prototype or on a canon, will be referred to as **expectations**.

4. Examples of conflict resolution in syntax

4.1. *Re-analyzing the subject*

The first example comes from Hungarian long-distance object-verb agreement as reported and analyzed by Katalin É. Kiss

[12] I am grateful to Alexis Dimitriades for a discussion of these two concepts.

(1987: 224-243; for discussion, see also 2002: 203-205). Consider (16). The matrix verbs ('forget', 'strive') show person agreement with the object ('you') of the subordinate verbs ('ask', 'visit').

(16) a. *Elfelejtette-**lek** megkérdezni **téged.***
forgot-SG1SBJ.**2OBJ** to.ask **you.ACC**
'I forgot to ask you.'

b. *Igyekez-**lek** meglátogatni **téged.***
strive-SG1SBJ.**2OBJ** to.visit **you.ACC**
'I am striving to visit you.'

This is in conflict with the most frequent and thus prototypical pattern, where agreement controller and target are clause-mates: they occur in the same clause.

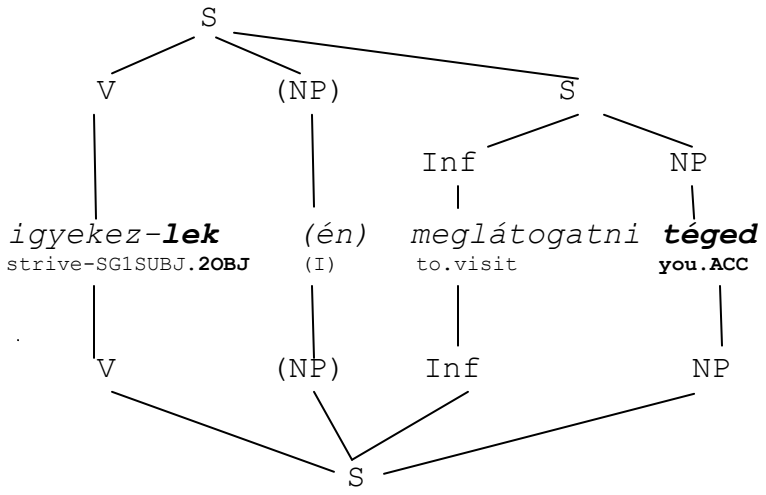
(17a) CONFLICT
Expectation: Agreement controller and target are in the same clause.
Observation: In (16), agreement controller and target are not in the same clause.

A possible solution might be to analyze the entire sentence

as a single clause. There is some evidence for this analysis, such as that the subordinate object – 'you' – may take pre-verbal focus position with respect to the main verb ('forget', 'strive'); e.g. ***Téged*** *igyekezlek meglátogatni*. "**you.ACC** I.strive.you to.visit" 'I am striving to visit YOU (as opposed to visiting somebody else).' However, there is also evidence for biclausality: for example, the subordinate object 'you' is selected and case-marked by the subordinate verb. This is shown most clearly by (16b), where the main verb 'strive' is not even a transitive verb and thus it could not possibly select the object.

Thus, É. Kiss concludes (1987: 237): "…the mono-clausal and bi-clausal properties of [the sentences in (16)] are equally weighty; neither can be ignored or explained away. What is more, they are simultaneously present…" The diagram in (18) reproduces a simplified version of the two-faced structure É. Kiss proposes for (16b), with the optional subject 'I' added in parentheses. The upper face of the tree is biclausal while the lower is monoclausal. This structure provides a resolution to (17a) as shown in (17b).

(18)



(17b) RESOLUTION

Observation revised:

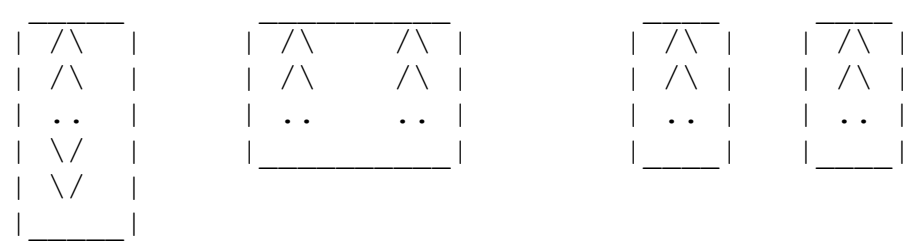
While in one part of (18), agreement controller and target are in different clauses, in the other part of (18), they are in the same clause.

This account involves a splitting of the conflicted clause into two parts. The split is minimal in that the two representations are just two "faces" of a single tree structure: they are both present on the same level of analysis. As we begin to look at other accounts that propose splits, we will see that the conceptual distance between the parts into which a single

entity is cut varies. (19) presents the variants; each box is a component.

(19)

a.	b.	c.
One tree with two faces:	Two trees on separate levels of one component:	Two trees in separate components:



Structure (19a) is that of (18). Examples for (19b) and (19c) come from alternative analyses of verb-particle constructions in English. Consider (20).

(20) a. *Megan wiped off the counter.*

b. *Megan wiped the counter off.*

While in (20), each sentence is free of contradiction all by itself, the two together present a paradigmatic conflict with the simplest pattern: that a language has a single linear order pattern for a pair of constituents rather than allowing for

multiple orders. As mentioned above (Section 2.2.2), the traditional transformational account assigns two syntactic identities to the particle: surface and underlying (e.g. Jacobs and Rosenbaum 1968: 105-106), and claims that underlyingly, the particle immediately follows the verb both in (20a) and in (20b). This is an instance of the analysis type diagrammed in (19b).

While in this account both levels are within the syntactic component of the grammar, in Sadock's Autolexical Grammar (Sadock 1987: 296-297), they belong to different components: what is the surface syntactic representation in transformational grammar is in the syntactic component of Autolexical Grammar and TG's underlying syntactic structure corresponds to AL's semantic component. This is an example of (19c). The conflict and the two resolutions are stated in (21).

(21) (a) CONFLICT

Expectation: The particle immediately follows the verb.

Observation: In (20b), the particle immediately follows the object.

(b) TRANSFORMATIONAL RESOLUTION:

Observation revised:

In (20b), the underlying syntactic representation of the particle immediately follows the verb.

(c) AUTOLEXICAL RESOLUTION:

Observation revised:

In (20b), the semantic representation of the particle immediately follows the verb.

Once again, these solutions employ partonomy and taxonomy: both involve a split into levels and a distinctive classification of the resulting parts. They differ in how the distance between the two parts – the two representations - is conceptualized[13]. While assuming two levels of syntactic structure (as in (19b)) is in need of independent motivation, the assumption of a syntactic and a semantic level (as in (19c)) is well-motivated: form and meaning are two entities whose properties, by their very nature, are known to be distinct in multiple ways.

A similar account that splits a syntactic constituent into two identities and assigns them to different components is proposed in Head-Driven Phrase Structure Grammar (Sag et al. 2003). It involves the subject of English imperative sentences as in (22).

[13] As an SiL reviewer pointed out, splitting something into two ordinary parts and splitting it into two levels may involve different conceptualizations. The question is left open in this paper.

(22) a. *Sit down!*

b. *Don't hurt yourself!*

Do these sentences have a subject? As is well known, there is conflicting evidence. On the one hand, one cannot "see or hear" a subject: it has no phonological body. On the other hand, the presence and particular shape of the reflexive pronoun in (22b) suggests that a 'you'-subject is present. Here is the conflict and a resolution suggested by Sag et al. (2003: 216-218).

(23) (a)CONFLICT:

Expectation: Reflexive pronouns have their person, number, and gender features controlled by an antecedent.

Observation: In (22b), the reflexive pronoun has person, number, and gender features but there is no antecedent to control them.

(b)RESOLUTION:

Observation revised:

In (22b), there is an antecedent 'you' that is present in syntactic form although not in phonological form.

The nature of the parts that the 'you'-subject is split into are again multiply justified: syntactic and phonological forms are clearly distinct in many ways.

In the examples discussed so far in this section, solutions to conflicts were based a partonomic decision: splitting the conflicted entity into **two parts**; and on the taxonomic step to classify the parts as distinct. This type of solution is an instance of (Aa) in Section 3, where the paradox of the green-and-brown lizard was solved by distinguishing head from body and describing their colors separately. The second way of re-analyzing a single entity into two seen in Section 3 does not involve a partonomic split: it amounts to a taxonomic step: dividing the class into **two kinds**. In (Ab) (Section 3), what first seemed to be a single class of bi-chromatic lizards was reanalyzed into two classes: lizards and snakes. Here are two grammatical accounts that adopt this tack.

An alternative analysis of verb-particle constructions is the first example. The solution suggested by Sag (1987: 329-333) to the alernative orderings of the particle is based on the recognition that two things that appear to be the same may actually be different – a case of mistaken identity. He argues that while *off* is indeed a particle in constructions like (20a): *Megan wiped off the counter*, in (20b) (*Megan wiped the counter off*) it is not a particle but the head of a prepositional phrase – even though it lacks a complement. The evidence that he cites is that the pre-object *up*, as expected of a particle, cannot take modifiers but the post-object *up*, being the head of a

phrase, can be modified, as shown in (24) for *look up*. The crucial conceptual tool of resolving the conflict is taxonomy: differentiating two kinds of *up*-s.

(24) a. *I looked the number **right** up.*

b. **I looked **right** up the number.*

Here is the statement of the conflict and its resolution.

(25) (a)CONFLICT:

Expectation: The particle immediately follows the verb.

Observation: In (20b) the particle immediately follows the object.

(b)RESOLUTION:

Observation revised:

In (20b), *off* is not a particle but the head of a prepositional phrase.

Since *off* is not a particle, it is exempt of (25a): it is not expected to follow the verb.

The second example of exempting a recalcitrant item from the general category by re-classification comes from Cole and Harmon's account of reflexive pronouns in Singapore Malay

(1998). Here is a problematic sentence (62).

(26) *Ali memberitahu Fatimah yang kamu menyukai dirinya.*
Ali tell Fatimah that you like **self-him/her**
'Ali told Fatimah that you like him.' OR:
'Ali told Fatimah that you like her.'

As the glosses show, *dirinya* is a long-distance reflexive in that its antecedent can be outside its clause. The problem is that there is a clash between this fact and some other properties of *dirinya* that differ from those of other long-distance reflexives crosslinguistically. Long-distance reflexives are generally monomorphemic and their reference must be a subject. For *dirinya*, neither is true: it is bimorphemic and, as shown by the fact that it can refer to Fatimah in (26), its antecedent may be a non-subject. By way of a solution, Cole and Harmon re-categorize this word (with support from additional evidence).

(27) (a) CONFLICT:
Expectation: Long-distance reflexives are monomorphemic and their antecedent are subjects.
Observation: *Dirinya* is a long-distance reflexive but it is is bimorphemic and its antecedent may be a non-

subject.

(b) RESOLUTION:

Observation revised:

Dirinya is not a reflexive: it belongs to a category intermediate between reflexives and pronouns. But if *dirinya* is re-classified out of the class of reflexives, it is exempt of the general pattern that holds for long-distance reflexives. The conceptual tool invoked to resolve the initial conflict is taxonomy.

In this section, we have seen syntactic examples of conflict resolutions through re-analyzing the conflicted entity either into two distinct parts or into two kinds. Next we will turn to the second major way of resolving conflicts ((B) in Section 3): keeping the one subject but unifying the two contradictory predicates.

4.2. *Re-analyzing the predicates*

To illustrate this approach, here is yet another account of the verb-particle constructions in English. Consider (28).

(28) a. *Joe called his aunt up.*

b. *Joe called up his aunt.*

One way to look at the conflict involved is as follows:

(29a) CONFLICT

Expectation: The direct object immediately follows its verb.

Observation: In (28b), the direct object immediately follows the particle.

Jacobson (1987: 32-39) resolves the problem by positing the following lexical entry for *call up*: $[[\text{call}]_V \text{ up}]_V$. In other words, both *call* and *call up* are verbs. This makes it possible to unite the two contradictory predicates – "immediately follows its verb" and "immediately follows the particle" - into a single one: "immediately follows its verb".

(29b) RESOLUTION

Observation revised:

In (28b), the direct object immediately follows its verb.

Here, the predicate describing the exceptional fact is re-analyzed so that that fact becomes non-exceptional: it is now covered by the general pattern. In the next example, it is the general pattern that is revised. Consider the following data from Luganda (Corbett 2006: 249).

(30) *ek-kazi* *aka-ana*
SG-fat.woman(**5/6**) SG-small.child(**12/14**)
ne *olu-sajja* ***ba**-alabwa*
and SG-tall.man(**11/10**) **2**-were.seen
'The fat woman, the small child, and the tall man were seen.'

In (30), the verb shows a gender prefix – Class 2 - which does not match the gender of any of the three conjoined subjects, which belong to Classes 5/6, 12/14, and 11/10 respectively.

(31a) CONFLICT:
Expectation: Verbs show agreement in grammatical gender with all of their subjects.
Observation: In (30), the verb does not show agreement in grammatical gender with any of its subjects.

How can the exceptionality of (30) be accounted for? Where does the Class 2 verb agreement come from? Notice that all three subjects are semantically human and that most human nouns in Luganda belong to class 1/2. The common denominator of humanness accounts for the choice of the agreement prefix on the verb.

(31b) RESOLUTION

Expectation revised: Verbs show agreement in grammatical or semantic gender with all of their subjects.

The resolution is by reference to a new taxonomic entity: semantic gender.

A third example of unifying two contradictory predicates also comes from agreement. Here, as in the Luganada case, the statement of the general pattern is modified again. It is based on analyses by Polinsky and Comrie of a pattern in Tsez that is similar to the Hungarian case seen above (Polinsky and Comrie 1999, Polinsky 2003: 302-308). Consider (32).

(32) *Eni-r* ***b****-iy-xo* [*už-a* *magalu*
mother-DAT **CL3**-know-PRES boy-ERG bread.ABS.**CL3**
b-ac'ruλi.]$_{C14}$
CL3-ate
'The mother knows that the boy ate bread.'

The problem is the object-agreement prefix on the main verb 'know': it shows Class 3 agreement. This is surprising since one would expect the main verb to agree with its own object, i.e., the subordinate clause, which belongs to Class 4. However, the actual controller is the object of the subordinate clause. This is therefore an instance of long-distance agreement: just as in

the Hungarian pattern discussed earlier, controller and target are not clause-mates[14]. The statement of the conflict parallels that stated for Hungarian ((17a)).

(33a) CONFLICT

Expectation: Agreement controller and target are in the same clause.

Observation: In (32), agreement controller and target are not in the same clause.

The solution proposed by Polinsky and Comrie is to relax the clause-mate requirement for controller and target. Instead, they suggest that the two have to be within a local domain, identified by Polinsky (2003) as the domain of head government. This may be either a single clause or a matrix clause plus a topicalized constituent of its subordinate clause. The latter is proposed to hold in (32). The re-definition of the relevant conditions is once again a taxonomic step.

(33b) RESOLUTION

Expectation revised:

Agreement controller and target are in the same local domain.

[14] In Tsez – unlike in Hungarian - there is actually an alternative expression of such sentences where the main verb does show Class 4 agreement.

In Section 3, we saw that, in addition to splitting the conflicted subject or unifying the conflicting predicates, a third way of straightening out the lizard-color conundrum was by proposing that the two colors show up under different conditions: green in daylight and brown in artificial light. This illustrates a very frequent strategy of resolving a conflict: relegating the two contradictory statements to two different "worlds". It invokes taxonomy in that members of a single kind are sorted into separate sub-kinds. We will now turn to examples of this type of resolution in syntax.

4.3. *Contextualizing the statements*

Under the assumption that human languages are different, any similarity among them conflicts with what is expected. Conversely, under the assumption of the ideal, canonical concept according to which all languages are of the same ilk, it is crosslinguistic variation that poses a conflict. It is under this second assumption that we will view the next example: the variable ordering of adpositions.

(34a) CONFLICT

Expectation: Adpositions are uniformly ordered across all languages: either all have prepositions or all have postpositions.

Observation: Adpositions are not uniformly ordered across all languages: some have prepositions, others have postpositions.

One way of dealing with any fact that is in conflict with what is assumed to be some general pattern is softening the absolute generalization into a statistical one. That is, rather than saying: "all X-s are Y", in the face of some X-s not being Y we can say "most (or a particular percentage of) X-s are Y". With regard to adpositional order, this would mean to say that across a particular percentage of languages, adpositions are uniformly ordered. However, this kind of quantitative contextualization would lead only to a probabilistic predictability of which languages had the same adpositional order. A more useful approach is to find the relevant qualitative contexts. (34b) is a contextualized – and at the same time statistical - universal (cf. Dryer 2005): the paradigmatic context is basic word order.

(34b) RESOLUTION

Expectation revised: Adpositions are uniformly ordered across most languages that have the same basic word order: most VO-type languages have prepositions and most OV-type

languages have postpositions.

All such implicational – also known as restricted – universal hypotheses familiar from the typological literature are simply contextualized universals. When a pattern is found not to hold for all – or most - human languages, members of this domain are taxonomized into distinctively defined sub-classes so that a tendency can now be stated to hold universally for at least one of them. Once again the relevant conceptual tool is taxonomy.

In the above example, paradigmatic context – that is, the presence of some other grammatical pattern in the language - is used to restrict the validity of a statement. In patterns referred to as coercion, it is syntagmatic context that is invoked. Examples are (35) and (36) (Michaelis 2003: 261-273), with the conflict stated in (37).

(35) a. *She ate an apple.*

b. *She ate* ***a pudding.***

(36) a. *She bought some pencils.*

b. *She bought* ***some wines.***

(37a) CONFLICT

Expectation: Indefinite articles and plural markers are semantically incompatible with mass nouns.

Observation: In (35b), the indefinite article is semantically compatible with a mass noun.

The solution proposed by Michaelis posits context-induced type-shifting for the nouns involved, legitimized by the Override Principle (2003: 268): "If a lexical item is semantically incompatible with its syntactic context, the meaning of the lexical item conforms to the meaning of the structure in which it is embedded." (Michaelis 2003: 261-263, 268) The resolution involves partonomy and taxonomy: dividing the meanings of words into contextually negotiable and contextually non-negotiable parts and labeling them distinctively.

(37b) RESOLUTION
Expectation revised:
Indefinite articles and plural markers are either semantically incompatible with mass nouns or they induce count-noun interpretations of the mass nouns.

Finally, let us turn to the fourth and most dramatic way of resolving a contradiction illustrated in Section 3. Rather than a re-formulation of the conflicting statements, it involves simply dropping one or both of them.

4.4. *Disregarding one or both statements*

Consider the following example of verb agreement in Slovene (Corbett 2006: 170).

(38) *groz-**a*** *in strah* *je*
horror**(F)**-SG.NOM and fear**(M)**.SG.NOM AUX.3S
*prevze-l-**a*** *vs-o* *vas*
seize-PST-**F**.SG all-F.SG.ACC village(F).SG.ACC
'Horror and fear seized the whole village.'

In this sentence, the two subjects are feminine and masculine, respectively, and the verb shows feminine agreement. How can this fact be described? Since the two subjects differ in gender, it seems the verb has to make a choice regarding its gender-agreement suffix. It ends up disregarding the gender of the second conjunct and agreeing with the first.

(39a) CONFLICT
Expectation: Given two subjects,
(a) the verb agrees with the first subject; and
(b) it agrees with the second subject.
Observation: In (38), the verb agrees with the first subject but does not agree with the second.

(39b) RESOLUTION

Expectation revised: Requirement (b) is dropped.

As noted by Martin Haspelmath and one of the SiL reviewers, this example seems different from those discussed before since this conflict poses a problem for the speaker rather than for the grammarian. Although here and in some subsequent examples, it seems indeed that the speaker himself is faced with the need to resolve a conflict, at the same time the grammarian does, too. Given the goals of this paper, only the second aspect of the problem is relevant: the conflict for the grammarian.

While in this example, part of one of two contradictory statements is disregarded, in the following Luganda example, both statements are. Consider (40) (Corbett 2006: 249-250). The intended meaning is 'The man and his dog fell'. The two attempts in (40) differ in the choice of the agreement prefix on the verb, but neither is fully successful. (? in front of (40) a. indicates semigrammaticality.)

(40) a. *?omu-sajja ne em-bwa-ye **bi**-agwa*
SG-man(**1/2**) and SG-dog(**9/10**)-his **8**-fell

b. **omu-sajja ne em-bwa-ye **ba**-agwa*
SG-man(**1/2**) and SG-dog(**9/10**)-his **2**-fell

The conflict stems from the fact that the two conjoined subjects differ in gender. In the earlier Luganda example ((30) above) where the conjoined subjects also differed in gender, the solution was for the agreement prefix of the verb to reflect a common semantic denominator: humanness. But in (40), one subject is a human and the other is an animal and thus this way out cannot work. The "Slovene way" of having the verb agree with only one of the two conjoined subjects ((39b) above) is apparently not applicable, either: (40a) shows non-human verb agreement (Class 8), (40b) shows human verb agreement (Class 2) and neither works.

(41a) CONFLICT

Expectations:

a. A propositions with conjoined subjects must have a grammatical expression.
b. A sentence with conjoined subjects is grammatical only if verb agreement is compatible with all conjoined subjects.

Observation: In (40), verb agreement cannot be made compatible with both subjects and thus the proposition cannot be expressed.

The solution is to avoid the structure that involves the incompatible subjects and to resort to a comitative construction instead, as in (42). In this construction, there are no conjoined subjects and thus there is no problem.

(42) *omu-sajja* ***y****-agwa ne* *em-bwa-ye*
SG-man(**1/2**) **1**-fell with SG-dog(9/10)-his
'The man fell with his dog.'

(41b) RESOLUTION
Expectations revised:
Both expectations are irrelevant.

In all the above examples, the conflict arose between some facts and a general pattern. In some cases, such conflicts between specific and general can be derived from – and thus explained by - a higher-level conflict between two general tendencies. For an example, consider English information questions like those in (42).

(42) (a) What **have you** done?
(b) Why **have you** done it?
(c) **Who has** done it?

(42a) and (42b) illustrate that in such questions, the subject follows the auxiliary. (42c) is an exception to this: the subject precedes the auxiliary rather than following it. Thus, (42c) conflicts with a general pattern.

However, (42c) is an exception for a good reason: this conflict is the consequence of a logically necessary clash between two general patterns. One is the one mentioned above: in information questions, the subject must follow the auxiliary. The other is that in information questions, the question word must precede the auxiliary. When the question word is the subject – as in (42c) *Who has done it*? - these requirements cannot both be met since the same element cannot both precede and follow something. Thus, the observed conflict between special and general in this case is the result of a necessary conflict between general and general.

The solution is to disregard one of the two general requirements. If the subject-after-auxiliary rule were complied with and the question-word-first requirement were disregarded, the structure **Has who done it?* would result. As it happens, English opts for the reverse keeping the question-word-first rule at the price of violating the subject-after-auxiliary requirement; the result is (42c).

As this example shows, in cases where two general patterns cannot both be complied with, a way out is to rank the

incompatible desiderata: for purposes of the task at hand, one of the two is disregarded. This is the fundamental approach taken to conflict resolution by Optimality Theory (for an excellent overview, see McCarthy 2002). Here is an example (Malchukov 2009).

In forming imperatives, there is a crosslinguistic tendency for accusative-style argument alignment. What this means is that the person to whom the command is addressed is the Agent in a transitive imperative and the Subject in an intransitive one. But there is also the canonical desideratum for languages to keep a uniform alignment pattern throughout their constructions, such as all-accusative-alignment (treating all A-s and S-s alike) or all-ergative-alignment (treating all P-s and S-s alike). While in the case of languages with basic accusative alignment, the two desiderata point in the same direction, they are at cross-purposes in ergative languages: the tendency for accusative alignment in imperatives and the desideratum to keep the same ergative alignment throughout cannot both be satisfied.

(43a) CONFLICT

Expectations:

a. Imperatives are constructed according to accusative alignment.

b. Languages hold to the same alignment pattern across their

constructions.

Observation: In ergative languages, a. and b. cannot both be true.

Malchukov shows how we can make sense of relevant differences among ergative languages by discovering that each opts for one of three solutions to the same conflict: either observing a. (i.e., having accusative-style imperatives; e.g. Dyirbal), or honoring b. (i.e., having ergative-style imperatives; e.g. some Daghestanian languages), or "calling it off" – i.e. avoiding the conflict by not having imperatives of transitive sentences at all (such as Kuikúro).

(43b) RESOLUTION

Observations revised:

a. For purposes of forming imperatives, a. is followed, b. is disregarded.

b. For purposes of forming imperatives, b. is followed, a. is disregarded.

c. For purposes of forming imperatives, both a. and b. are irrelevant since imperatives of the critical kind do not exist.

So far in this paper, we saw how conflict resolution provides

a unified angle for viewing solutions to problems in various areas of syntax and across various syntactic theories.[15] Next, we will take a broader view by looking at conflicts and conflict resolutions in areas of grammar other than syntax, followed by a brief glance at sciences outside linguistics and at everyday reasoning.

5. Conflict resolution outside syntax

Morphological structure is typically fraught with exceptions and other kinds of conflicts.[16] Consider infixes in Tagalog (Yu 1997: 26-28, 39-40, 59-60).

(44) (a) *dalo* 'attend'
*d<**um**>alo* 'attend (**agent focus**)'

(b) *hawak* 'hold on'
*h<**um**>awak* 'hold on (**agent focus**)'

These infixed forms are exceptions to a morphological rule that requires Tagalog affixes of the agent-focus type to be prefixed

[15] On how theoretical constructs in syntactic theory serve, on the one hand, to solve conflicts and on the other hand, to constrain the conflict-resolving power of such constructs, see Moravcsik 1993.

[16] See the papers in Baerman et al. (ed.) (2007) and especially Spencer's, which provides an overview of various paradigmatic conflicts in morphology, such as syncretism, deponency, and heteroclisis. For examples of coercion in morphology, see Malchukov 2003.

to the stem. Here is the conflict between a general pattern and a specific fact:

(45a) CONFLICT

Expectation: Class X affixes are prefixed to the word.

Observation: The agent focus affix of Class X is infixed to the word.

Why is the agent focus affix infixed rather than prefixed? The exceptional position of the agent focus affix may be attributed to a phonotactic constraint which requires all words to have a consonantal onset. Since the agentive focus affix starts with a vowel, it could not be prefixed without violating the phonotactic constraint requiring consonant-initial words. In opting for compliance with the phonotactic constraint, the language still sticks as close to the morphological pattern as possible by placing the affix right after the first consonant of the stem.

One way to resolve the conflict in (45a) is by replacing the the statement of the general pattern by a relaxed version to accommodate the exceptional instance.

(45b)RESOLUTION

Expectation revised:

Generally, Class X affixes are ordered as close to the left edge of the word as phonotactically allowed.

This is a resolution of type (B)(b) discussed in Section 3 ("lizards are of dark color"). We saw the same broadening of the statement of a general pattern in the case of human agreement in Luganda ((30)) and in the case of long-distance agreement in Tsez ((32)). It is based on introducing a new taxonomic entity.

In an Optimality-Theoretic framework, the Tagalog data are explained by the phonotactic requirement taking precedence over the morphological one - i.e. the ranking of the two conflicting desiderata (resolution type (D) in Section 3). In McCarthy and Prince's account (1995: 359-361) the phonological constraint is "No-Coda" and the morphological constraint is "Leftmostness". See also Yu's OT account (2007: 26-28, 38-41).

Conflicts are also common in **phonology**. Wurzel (1981)[17] raises the question of whether native German affricates are bisegmental or monosegmental and he concludes that evidence is contradictory. Examples are /ts/ (as in *Zwerg* 'dwarf') and /pf/ (e.g. *Pfeife* 'pipe'). On the one hand, /ts/ seems monosegmental because, if it were bisegmental, then, due to the analyzability condition, there ought to be words starting not only with /tsv/

[17] For discussion, see Kertész and Rákosi (2006).

as in *Zwerg* but also with /sv/; but there are no such words in German. On the other hand, the fact that in addition to /ts/-initial words, there are also /st/-final ones, such as *Fest* 'holiday', is consistent with analyzing /ts/ as bisegmental. This is because in German, for every word-initial consonant sequence C_1C_2, there are also a word-final sequence C_2C_1. As shown in (46a), the conflict is between a canon and a fact.

(46a)CONFLICT

Expectation: Phonological structures must be either monosegmental or multisegmental but not both.

Observation: Native German affricates are both monosegmental and bisegmental.

For a conceptual tool to resolve the contradiction, Kertész invokes paraconsistent logic (2004: 357-365). The solution he proposes (363) may be stated as (46b).

(46b)RESOLUTION

Observation revised:

Native German affricates are monosegmental in World-1 and bisegmental in World-2.

Kertész provides a clear account of paraconsistent

reasoning.[18] In this framework, two contradictory statements may both be held to be true if each is said to hold in a different "world" – that is, under distinct conditions. This view allows for contradictions across worlds but bans self-contradictions: no single argument may make use of two contradictory statements. Thus, every logical argument remains self-consistent even though two separate argumentations may involve two premises that contradict each other. This solution seems to me to fall within type (C) discussed in Section 3: contextualizing each of two contradictory statements - although this interpretation may fall short of doing full justice to paraconsistent logic.

This reasoning also appears to be akin to one that has been proposed for a major paradox in **physics**: the analysis of energy. Is energy wave-like or particle-like? Pais renders the solution as follows.

"Wave and particle mutually exclude each other. The classical physicist would say: if two descriptions are mutually exclusive, then at least one of them must be wrong. The quantum physicist would say: whether an object behaves as a particle or as a wave **depends on your choice of experimental arrangement for looking at it.** He will not deny that particle and wave behavior are

[18] For an extensive account of paraconsistency, see for example Rescher and Brandom 1980.

mutually exclusive but will assert that both are necessary for the full understanding of the properties of the object." (Pais 1994: 44; emphasis added)

Conflicts similarly loom large in other sciences. For anomalies and their possible resolutions in **biology**, see for example Darden 2006, especially chapter 9, and Gluckman and Hanson 2008. Solutions in the various sciences often invoke partonomy and taxonomy. A recently publicized conundrum in **astronomy** involves Pluto. While until now, Pluto was considered a planet, its properties conflict with those of other planets, and thus it has been re-categorized as a different kind of heavenly body. Conflicts and their resolutions are also prominent is some styles of music as well as other forms of **art**, literary and visual.

Finally, conflicts are ubiquitous in **everyday thinking** as well. Human life - individual and social - is laden with conflicts, compounded by the attendant burden of either crashing or making a choice. There are conflicts between reason and emotion, what we want to do and what we can do, what we say and what we mean, what we say and what is understood by others, one's own interests and those of others, and the different roles that we play in life. The conflicted nature of human thought is highlighted by Festinger's work (1956 (2008), 1957) and by

Johnson-Laird's research (2006) on cognitive dissonance: how people can hold contradictory beliefs at the same time. Solutions to conflicts in human life, whether individual or communal, frequently involve a partonomic step: a conflicted unit – be it a pair of wrestlers, a married couple, a political party, or a country - is cleft into parts each free of conflict on its own.

The lizard examples surveyed in Section 3 already illustrated how the various ways of resolving conflicts are applied in everyday discourse. Simple experimental evidence exemplifying a common-sense resolution to a conflict in an everyday situation comes from a study of Sharpe, Eakin, Saragovi, and Macnamara (1996). 40 undergraduate students were presented with the following situation. A student asks her professor whether her paper is good. The professor pauses and responds: "Yes and no." Subjects were instructed to make sense of this contradictory statement. 97.5% of the subjects said part of the paper must have been judged good, the other part bad. This corresponds to the strategy of splitting the conflicted object into parts (cf. (Aa) in Section 3).

In closing, let us look at some of the ways in which **philosophers of science** have viewed conflicts. Nicholas Rescher considers our reluctance to put up with contradictions as an inherent feature of the human mind: "The quest for consistency

is a matter of practical human convenience – a response to the demands of a limited creature with an intolerance to cognitive dissonance and an incapacity to accept inconsistency." (1987: 315) Karl Popper in turn highlights the benefits of this human intolerance to conflicts: in his view, it is a major engine behind scientific progress. "Contradictions are of the greatest importance in the history of thought – precisely as important as their criticism. ... Without contradictions, without criticism, there would be no rational motive for changing our theories: there would be no intellectual progress." (1962: 316)

Indeed, conflict resolution may be the central goal of theory building in linguistics and elsewhere. It is what prompts the search for explanations. We ask a why-question because there is a mismatch between observation and expectation: something that is observed to occur may seem probable but not necessary; or it may seem possible but not probable and even less necessary; or it may not even seem possible. In each case, the explanation is satisfying if it resolves the conflict between expectation and perceived reality by realigning the two and thus restoring harmony between them.

6. Conclusions

As noted in the beginning of this paper, just as the study of languages offers a window into human cognition, so does the

study of metalanguages – the languages of grammars. Identifying the conceptual tools employed in grammatical descriptions is part of what Kertész sees as an emerging new field: the cognitive science of science (Kertész 2004: 2).

This field may be viewed as an extension of cognitive linguistics. In cognitive linguistics, the goal is to relate the conceptual tools underlying **language** to other aspects of human cognition. In the cognitive science of science in turn, the goal is to relate the conceptual tools underlying **the descriptions of language** to other aspects of human cognition.

This paper focused on a particular issue within this field: the concept of conflicts and their resolutions in syntactic analysis. Let us review what support has been provided for the four main points stated in the introduction.

(A) Conflicts may be reduced to contradictions; resolving conflicts thus amounts to resolving contradictions.

Using ditransitive constructions as a first example followed by others, Section 2 showed how synonymy boils down to a contradiction and how its resolutions fall into two basic conflict-resolution strategies.

(B) **There is a limited set of logically possible ways of resolving contradictions. Solutions to conflicts put**

forth in the syntactic literature illustrate each of the basic types.

Section 3 surveyed four basic logically possible ways and their subtypes of resolving conflicts; Section 4 analyzed various resolution proposals in syntax and showed that they were instances of these four types.

(C) In the syntactic literature, two of the basic conceptual tools facilitating conflict resolution are partonomy (whole-part relations) and taxonomy (type-subtype relations).

As pointed out at the end of Section 3 and as seen in subsequent examples, part-whole and subtype-type relations are fundamentally instrumental in constructing conflict-resolving strategies. Contemplating taxonomy, Cecil Brown remarks (Brown 1990: 17 (emphasis added): Categorization involves "the treatment of two or more distinguishable entities **as if** they were the same." This holds in reverse as well: two things that may appear the same are categorized as if they were distinct subtypes of a type. Partonomy may be characterized in a parallel manner: it involves treating multiple things as if they were one thing, or one single thing as if it were more than one.

Partonomy sanctions what would otherwise appear to be a *quantitative contradiction*: that something can be both one and more than one. Taxonomy in turn licenses what would otherwise appear to be a *qualitative contradiction*: that two things can be both the same and not the same. These two humble foot-soldiers in the army of conceptual tools of the human mind may thus be viewed as crucial to conflict resolution. This may account for their universal presence in both scientific and everyday thought.[19] Whether partonomy and taxonomy are the only tools of resolving conflicts, and whether conflict resolution is their only role in scientific analyses remains to be investigated.

The ubiquity of partonomy and taxonomy as conflict-resolving tools outside syntax was illustrated in Section 5: we cast a brief look at conflicts in morphology, phonology, as well as conflicts in sciences outside linguistics and in everyday thought, supporting the fourth point:

(D) Conflict resolution may be a goal common not only to various syntactic and other linguistic theories, but also to theories in other sciences and to everyday reasoning; partonomy and taxonomy are in turn shared tools in the

[19] Whereas there is a large linguistic literature on categorization, there has been less dedicated discussion on partonomy. The issue of constituent structure and that of levels of analysis have been prominent in the literature but they have not generally been related to partonomic analysis in other sciences and in everyday thought. A few relevant items taking a broader view of partonomy as a descriptive tool in linguistics are Tversky 1990, Moravcsik 2006a, especially Chapter 4, Moravcsik 2009, and Moravcsik to appear (a).

service of this shared goal across all of these domains.

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