Valency and voice constructions

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This paper provides an overview of the key concepts and associated terminology in the domain of valency and voice constructions. It does not discuss explanatory theories, but focuses on clarifying the concepts and terms to serve as the basis for an evaluation of competing theories. An appendix gives simple definitions of 41 technical terms, many of which do not have a consistent meaning in the earlier literature.

1. Overview

Different verbs take different numbers and kinds of arguments (see English (1a-e)), and the same verb root may sometimes occur with different kinds of arguments (see Turkish (2)-(3)). These observations are often described by the technical terms *valency* and *voice*. But linguists also use other terms, and their terms are not always clearly defined. This paper provides an overview of the relevant concepts and phenomena in this domain, and Appendix A briefly surveys the various terminological traditions. We will see that there is much more agreement than the different ways of talking about the phenomena might suggest. Essentially none of what this paper says is controversial, though there are many different proposals for explaining the patterns that we observe cross-linguistically. Explanatory proposals are beyond the scope of this overview, which focuses on the network of concepts needed to discuss valency and voice constructions in a cross-linguistic perspective. Appendix B provides an alphabetical list of 41 key terms with their definitions.

The examples in (1a-e) show five English verbs with different valencies. Some verbs take one argument (1a), while others take two arguments (1b-d) or three arguments (1e).

(1)   Verbs with different valencies in English
        a. *Kim **relaxed**.*
        b. *Kim **saw** the dog.*
        c. *Kim **looked** at the dog.*
        d. *Kim **relied** on the dog.*
        e. *Kim **showed** the dog to Lee.*

Turkish serves to illustrate voice constructions (also called *valency-changing constructions*). Corresponding to the basic two-argument construction in (2a), there is a passive voice construction using the same verb root in (2b) that contains only one argument, and corresponding to the basic one-argument construction in (3a), there is a causative voice construction in (3b) that contains two arguments.

(2)   Turkish passive voice alternation
        a. *Musa ev-i   **temizle-di**.*
          Musa house-ACC   clean-PST
          'Musa cleaned the house.'

    b. *Ev*   **temizle-n-di**.
       house   clean-PASS-PST
       'The house was cleaned.'

(3)   Turkish causative voice alternation
    a. *Musa*   **öl-dü**.
       Musa   die-PST
       'Musa died.'

    b. *Ali*   *Musa-yı*   **öl-dür-dü**.
       Ali   Musa-ACC   die-CAUS-PST
       'Ali killed Musa.'

The following four sections (§§2-5) discuss individual valencies and more general (macro-)valency constructions in particular languages. Then I move on to polyvalency (the situation when a verb has multiple valencies, §6) and a general characterization of valency and voice alternations (§§7-8). In the next three sections (§§9-11), I give an overview of the most important cross-linguistic valency alternation types, distinguishing between polyvalency alternations (with no coding on the verb) and voice alternations (with verb coding, as in the Turkish examples just seen).

Thus, we must distinguish three levels of abstraction: (i) valencies of individual verbs, (ii) valency constructions and alternations (of individual languages), and (iii) cross-linguistic valency alternation types. The distinction between these three levels should always be kept in mind when thinking about valency and voice phenomena.

The paper concludes with some discussion of the difference between role-relinking and role-manipulating alternations (§12), of different types of argument omission (§13), and of productivity of alternations (§14).

2. Individual valencies

Different verbs have different individual valencies, and we can use the notation in (4) to state the valency of each verb (the examples are again from English). Each argument position is represented by an arbitrary integer. The schemas given in angle brackets here are often called *valency frames*.[1]

(4)   *relax*   ⟨V, 1[NOM]⟩
      see   ⟨V, 1[NOM], 2[ACC]⟩
      look   ⟨V, 1[NOM], 2[*at*]⟩
      rely   ⟨V, 1[NOM], 2[*on*]⟩
      show   ⟨V, 1[NOM], 2[ACC], 3[*to*]⟩

This notation uses square brackets for argument coding properties. For arguments that are flagged by a preposition (e.g. *at the dog, on the dog, to Lee*), they give the preposition, while for the core arguments, they show the case labels "nominative" and "accusative", a distinction seen clearly in personal pronouns in English (e.g. *I_{NOM} saw them_{ACC}, they_{NOM}*

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[1] Another term is *valency pattern* (e.g. Faulhaber 2011). In fact, the bare term *valency* is not frequently used as a count noun, but more commonly as an abstract noun for the general domain of verbal valencies (instead of "the valencies of these verbs", linguists much more frequently say "the valency frames of these verbs").

saw me_ACC, she_NOM showed me_ACC to Lee).[2] Valency frames are notated in a wide variety of ways in the literature, but what all notations share is that they represent distinguishable argument positions associated with argument coding properties. The verb (V) is not usually included in these frames, but I do it here because argument coding may occur on the verb (as in (12) below), and including the verb allows us to extend the same notation to voice constructions (see (30a-d)).

Argument flagging (by adpositions or case-marking) does not exhaust the grammatical properties of the arguments that a verb takes. Other properties of arguments relate to argument indexes on the verb, word order, obligatoriness, or behavioural properties such as omissibility in control constructions, but these involve further complexities that are less easy to represent in a valency frame (see §4 below).

The term *(individual) valency* can thus be defined as in (5).[3]

(5)   The valency of a verb is the set of argument positions that the verb takes together with their grammatical properties

Here the verb "take" is used to express the association between verbs and their argument positions (a simple alternative would be "have"). Some authors talk about verbs "requiring arguments", but this can be misleading, because an argument can be omitted. For example, *write* is a two-argument verb (like *see*), but its accusative argument may be absent (e.g. *Lee was writing a letter; Lee was writing*). The possibilities of argument omission are discussed further in §13.

The definition in (5) contains the term *argument position* because what a verb takes are grammatical options, not concrete arguments. In particular sentences, we can of course also say that a verb takes a particular *argument expression* (e.g. *relied* takes the argument *on the dog* in (1d)), but in the definition of a verb's valency, it is better to be more precise and talk about argument positions (alternatively, one could say *slots*, or *(empty) places*, corresponding to *Leerstellen* in German).[4]

Many authors use the terms *monovalent*, *bivalent* and *trivalent*, which are synonymous with *one-argument, two-argument* and *three-argument*.[5]

3. Argument linking

In addition to information about a verb's argument positions with their grammatical properties, speakers must know how the arguments are linked to the participant roles in the verb's meaning. This may seem easy in simple cases like English *see* and *look* (where it is clear that the perceiver is the nominative argument), but many languages have verbs where it is not straightforward because participants with similar roles sometimes correspond to different argument types. Consider (6a-b) from Russian, where the

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[2] Instead of "nominative" and "accusative", descriptions of English more commonly use the terms "subject" and "object", but we will see that these involve complexities that we can avoid here by using the case labels (NOM and ACC). However, this is not an important point.

[3] Instead of *valency*, some authors use the variant form *valence* (e.g. Bybee 1985; Müller 2016), which has been common especially in American English usage. However, in comparative studies, *valency* is now deeply entrenched (e.g. Malchukov & Comrie 2015), and the English translation of Tesnière's seminal book also uses *valency* (Tesnière 1959; 2015).

[4] Two-argument verbs are often called "two-place verbs", following a tradition in predicate logic. Bühler (1934: 173) is often credited with using the term *Leerstellen* 'empty places' for the first time in connection with grammar. (Another term for argument positions, or argument slots, is *valents*; Fillmore 2008).

[5] Zero-argument verbs (also called *avalent*) are not common, but in quite a few languages, meteorological verbs have no argument (e.g. Spanish *llueve* 'it is raining').

nominative form *Maša* ('Masha') corresponds to two rather different roles (experiencer and stimulus, respectively).

(6) Russian
  a. Маша любит Мишу.
     Maš-a   ljubit Miš-u.
     Masha-NOM loves   Misha-ACC
     'Masha loves Misha.'

  b. Маша нравится Мише.
     Maš-a   nravitsja   Miš-e.
     Masha-NOM pleases   Misha-DAT
     'Misha likes Masha.' (Lit. 'Masha is pleasing to Misha.')

Moreover, the same argument type may correspond to very different roles, as we can see in (7), where the dative argument *Miše* is not an experiencer, but a kind of beneficiary.

(7) Саша помогает Мише.
    Saš-a   pomogaet Miš-e.
    Sasha-NOM   helps   Misha-DAT
    'Sasha helps Misha.'

Thus, complete information about a verb must include not only its valency, but also its meaning and the linking of its participants to the arguments. For the three Russian verbs, this is shown in (8).

(8) *ljubit'*   ⟨V, 1[NOM], 2[ACC]⟩ '1 loves 2'   (cf. 6a)
    nravit'sja   ⟨V, 1[NOM], 3[DAT]⟩ '3 likes 1'   (cf. 6b)
    pomogat'   ⟨V, 1[NOM], 3[DAT]⟩ '1 helps 3'   (cf. 7)

Analogously, the description of the English verbs in (4) must be complemented by adding the verb meanings as in (9). If one already knows English, this may not seem so important, but it is redundant only for *relax* (which has a single argument and a single semantic participant). For the other verbs, it would be logically possible that the linking of participants to arguments is different, and we will see below (in §6) that for *show*, there is another linking possibility with a different valency.

(9) *relax* ⟨V, 1[NOM]⟩   '1 relaxes'
    see   ⟨V, 1[NOM], 2[ACC]⟩   '1 sees 2'
    look   ⟨V, 1[NOM], 2[*at*]⟩   '1 looks at 2'
    rely   ⟨V, 1[NOM], 2[*on*]⟩   '1 relies on 2'
    show   ⟨V, 1[NOM]⟩, 2[ACC], 3[*to*]⟩ '1 shows 2 to 3'

Thus, in the complete valency descriptions in (8) and (9), the integers have three functions. They serve (i) as representations of the argument positions in the valency frame, (ii) as variables for participants in the verb meaning, and (iii) as index numbers linking between the argument positions and the participants. (Recall that the integers are arbitrary, i.e. there is no reason why the meaning of *see* is described as '1 sees 2' rather than, say, '3 sees 8' or '2 sees 1'.)

As an alternative to the square bracket notation in the valency frames, we could use a vertical diagram representation, as in Figure 1. Here the index numbers respresenting the semantic participants are linked to the argument properties by dotted lines.
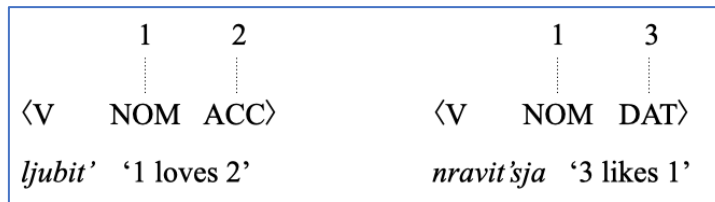

Figure 1: Linking diagrams for Russian *ljubit'* and *nravit'sja*

The square bracket notation and the vertical diagram representation are just two notational possibilities for valencies. So far, no single notational style has become dominant, but it is usually not difficult to see how a notation relates to the uncontroversial general concepts.[6]

There is a rich and interesting literature about argument linking (or *argument realization*), both for particular languages and for cross-linguistic generalizations. Argument linking is by no means random, and there are many interesting ideas about accounting for the regularities (e.g. Dowty 1991; Stiebels 2002; Levin & Rappaport Hovav 2005; Van Valin 2005; Croft 2012; Wechsler 2015). Linking regularities are not discussed in this paper, although one might say that they are the most interesting discoveries in the domain of valency and voice. But this paper focuses on the general concepts and the terminology, in the hope that greater conceptual clarity will also make it easier to identify the best explanations for linking regularities.

4. Argument properties

In addition to case-marking affixes (nominative, accusative, dative, etc.) and argument-coding adpositions (*at, on, to*, etc.), argument positions are often characterized by other properties that are generally considered to be part of the valency of a verb.

Most importantly, many languages rely more on ARGUMENT INDEXING than on flagging. For example, Creek (a Muskogean language of Oklahoma) has some single-argument verbs that take person suffixes (as in 10a), and others that take person prefixes (as in 10b).

(10) a. ***cikonn**-éy-s*
     limp-1SG.SUFF-IND
     'I am limping' (Martin 2011: 171)

   b. *ca-**nókk**-i:-s*
     1SG.PREF-sick-DUR-IND
     'I am sick' (Martin 2011: 170)

These two verbs thus have different valencies, and they are again different from two-argument verbs, which often take both a prefix and a suffix:

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[6] For example, the valency dictionary of English by Herbst et al. (2004) uses a notation of the following sort:

    protect I: [N]$_A$ – II: [N]$_P$ – III: [*from* N]   (Herbst et al. 2004: 623)

In the notation that I use here, this would look as follows:

    protect ⟨V, 1[NOM]⟩, 2[ACC], 3[*from*]⟩   '1 protects 2 from 3'

(11) *ci-**na:fk**-éy-s*
2.PREF-hit-1SG.SUFF-IND
'I am hitting you' (Martin 2011: 169)

The three different valencies can be represented as in (12).[7]

(12) *cikonn-* ⟨V.[SUFF₁], 1⟩ '1 limps'
nokk- ⟨[PREF₁].V, 1⟩ '1 is sick'
na:fk- ⟨[PREF₁].V.[SUFF₂], 1, 2⟩ '2 hits 1'

The arguments of a verb may also differ in terms of the usual word order, as in Icelandic. The two verbs *hjálpa* 'help' and *líka* 'like' both take a Nominative and a Dative argument, but with different orders (Barðdal 2015: 370).

(13) a. NOM – V – DAT
Ég **hjálpaði** *drengju-num.*
I.NOM helped boy-DEF.PL.DAT
'I helped the boys.'

b. DAT – V – NOM
Henni **líkaði** *matur-inn.*
she.DAT liked.3SG food-DEF.SG.NOM
'She liked the food.'

Moreover, as a large literature on Icelandic has discussed, preverbal Dative arguments (like *henni* in 13b) have some behavioural "subject-like" properties which postverbal Dative arguments (like *drengjunum* in 13a) lack, so they are often called "Dative Subjects" (e.g. Zaenen et al. 1985; Andrews 2001). We can thus say that the valencies of *hjálpa* and *líka* differ as in (14).[8]

(14) *hjálpa* ⟨V, 1[NOM.SBJ], 2[DAT]⟩ '1 helps 2'
líka ⟨V, 1[DAT.SBJ], 2[NOM]⟩ '1 likes 2'

The corresponding vertical diagrams for Creek and Icelandic are shown in Figure 2 and 3.
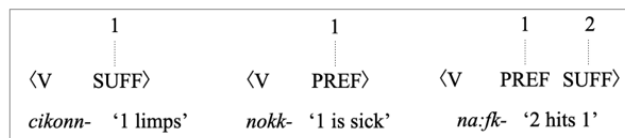

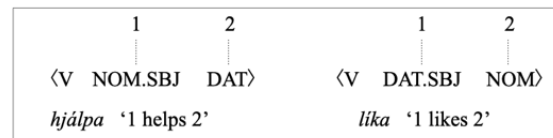Figure 2: Linking in three Creek valencies   Figure 3: Linking in two Icelandic valencies

Thus, the argument properties that are included in the valencies of verbs can be quite diverse. While flags (case-markers and adpositions) are particularly salient (resulting in the common expression "case frame" for valency patterns), the relevant argument

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[7] In indexing constructions, the argument integers occur twice: associated with the person index on the verb, and standing for the conominal (see Haspelmath 2013, where I show that arguments can be doubly instantiated, both as person indexes and as full nominals).

[8] Alternatively or additionally, one might want to add the word order to the valency frame, e.g. ⟨1[NOM] – *hjálpa* – 2[DAT]⟩, ⟨1[DAT] –*líka* – 2[NOM]⟩. This would be another one of many notational possibilities, and like other notations, it would be a simplification.

properties may include person indexing ("agreement"), as in Creek, and all kinds of behavioural properties, which are often summarized in complex syntactic role concepts such as "subject" and "object".

In some views of general syntax, such syntactic role concepts are regarded as universal, and central to general theories of argument linking, e.g. in Relational Grammar (Blake 1990), Functional Grammar (Dik 1997), or Lexical-Functional Grammar (Börjars et al. 2019). In these approaches, argument linking consists in linking from semantic roles to syntactic roles ("grammatical relations", "syntactic functions", "grammatical functions"). But syntactic roles are not universal (as noted by Dryer 1997), so the linking rules are to a large extent language-particular. The valencies are therefore best stated as linking participant roles to language-particular sets of argument properties.[9] This is also the usual practice of valency dictionaries.

Finally, it should briefly be mentioned that arguments may be clausal, and these may have different argument properties, too. Thus, English *stop* and *cease* take differently coded clausal arguments (= complement clauses), even though there is no relevant semantic difference.

(15) *stop*   ⟨V, 1[NOM], 2[GERUND-CLAUSE]⟩   '1 stops V2-ing'
     cease   ⟨V, 1[NOM], 2[*to*-CLAUSE]⟩   '1 ceases to V2'

And arguments may be limited to certain meanings, but not restricted to a particular syntactic class. For example, English *put* has a directional argument, which may be a nominal (flagged by some spatial preposition), or a spatial adverb.

(16) *Kim put the phone {in the box / under the box / there}.*

Such arguments may be called ADVERBIAL ARGUMENTS.[10] Another example of a verb with an argument position that can be filled by different syntactic classes is German *wissen* 'know (that)', which must take a "propositional" argument, as illustrated in (17).[11] It can combine with clauses and nominals like 'the answer', but not with nominals that do not denote propositions (such as *den Film*).

(17) *Kim*   **weiß**,   *{dass   heute   Montag   ist /*   *wo   Leipzig   liegt /*
     Kim   knows   that   today   Monday   is   where   Leipzig   is
     *die   Antwort / *den Film}.*
     the   answer   the   film
     'Kim knows {that today is Monday / where Leipzig is / the answer / the film}.'

The valencies of verbs like *put* and *wissen* can be represented as in (18), where the semantic conditions are given in italics.

(18) *put*   ⟨V, 1[NOM], 2[ACC], 3[*DIRECTION*]⟩   '1 puts 2 in the direction of 3'
     wissen ⟨V, 1[NOM], 2[*PROPOSITION*]⟩   '1 knows 2'

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[9] For comparative purposes, I will introduce the syntactic role-types S, A and P (as well as "obl" and a few others) below (from §9 onward). But these role-types are not needed for language-particular descriptions.
[10] Van Valin (2005: 23) calls them "argument-adjuncts", and Feuillet (2006: 383) proposes the term *adject* ("ad(verbial ob)ject", French *adjet*).
[11] Semantic conditions on argument positions that can be filled by arguments of different categories have sometimes been called "s-selection" (or "semantic selection", Grimshaw 1979).

Thus, argument properties may be primarily semantic. Of course, the meanings of most verbs entail restrictions on the kinds of arguments they can take (e.g. the two arguments of 'eat' must be humans or animals, and edible stuff, respectively). What is special about verbs like *put* and *wissen* is that they have arguments that can be of different syntactic types.

5. Macro-valency constructions (or argument structure constructions)

In addition to describing the valencies of individual verbs, we also want to generalize, because in all languages, many verbs behave alike with respect to their argument positions and their grammatical properties. For example, English has many verbs with a single (nominative) argument like *relax* (they are called *intransitive*), and many verbs with a nominative and an accusative argument like *see* (they are called *transitive*). We can represent these by the generalized valency frames in (19), which can be called MACRO-VALENCY CONSTRUCTIONS (this term is introduced here to make the relation between individual valencies and generalized constructions transparent).

(19) a. ⟨V, X[NOM]⟩   e.g. *relax, joke, work, die*   (intransitive)
      b. ⟨V, X[NOM], Y[ACC]⟩   e.g. *see, kill, destroy, hate*   (transitive)

All languages have such macro-valency constructions that apply to a range of verbs, often in a productive way (e.g. Barðdal 2008). The two macro-valency frames that we see in (19a-b) are very similar to the individual valencies of *relax* and *see* in (4) and differ from them only in that they contain the variables X and Y instead of the integers 1 and 2.

The term *argument structure* is sometimes used in a sense similar to *valency*, though linguists who use this term (in the tradition of Williams 1981) typically say that the argument structure of a verb is a list of semantic role labels, as in "*put* ⟨V, agent, theme, location⟩" (e.g. Marantz 1984: 15; Bresnan 1994: 73, 80).[12]

Macro-valency constructions are often called *argument structure constructions*, following Goldberg's (1995) influential work. Goldberg emphasized that macro-valency constructions can be associated with generalized meanings, as illustrated in (20).

(20) ⟨V$_\mu$, X[NOM], Y[ACC], Z[ACC]⟩   'X causes Y to have Z (in a μ manner)'

This English macro-valency construction generalizes over the valencies of verbs like *give, hand, show, sell, bequeath*, which all have some kind of caused possession meaning and which occur with a double object (ACC-ACC) valency frame (*she gave him money, they bequeathed us a fortune*, etc.).

In what follows, I will generally abbreviate the precise term *macro-valency construction* to *valency construction*, because such constructions are of far greater interest to grammarians than individual valencies. Misunderstandings are therefore unlikely.[13] In the next three sections (§6-8), we will consider more complex situations where a single verb root is associated with multiple valencies.

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[12] In the *Valency Patterns Leipzig* (*ValPaL*) database, we call such lists *role frames* (Haspelmath & Hartmann 2015).

[13] Individual verb valencies are primarily of interest to lexicographers, and linguists rarely think of them as constructions, though they are of course constructions in the sense of morphosyntactic schemas with at least one open slot. (An individual valency such as ⟨*see*, 1[NOM], 2[ACC]⟩ is a partially filled construction, while a macro-valency construction such as ⟨V, X[NOM], Y[ACC]⟩ is a fully schematic construction.)

6. Polyvalency (or pairs of sister valencies)

Many languages have verbs that can be associated with two (or sometimes more) different valencies, and we can call this situation POLYVALENCY (compare the term *polysemy* for a word that is associated with two or more meanings). For example, German *trocknen* 'dry' can occur with two arguments as in (21a) or with a single argument as in (21b); it behaves like English *to dry* in this respect. (Verbs of this type are also called *labile verbs*; see also (24) and §10.3 below.)

(21) German
    a. *Die Sonne **trocknet** die Wäsche.*
       the sun dries the laundry
       'The sun is drying the laundry.'

    b. *Die Wäsche **trocknet**.*
       the laundry dries
       'The laundry is drying.'

We can thus say that German *trocknen* is a POLYVALENT VERB and is associated with the two valencies shown in (22).[14] The double tilde symbol ($\approx$) means 'may occur side by side with'; it is adopted from Booij 2010: §2.2, who uses it generally for paradigmatic relations in morphology.

(22) *trocknen*   ⟨V, 1[NOM], 2[ACC]⟩   '1 makes 2 dry'
        $\approx$ ⟨V, 2[NOM]⟩   '2 becomes dry'

The two valencies of *trocknen* may be called *sister valencies*.[15] Similarly, English *show* occurs not only with the valency ⟨V, 1[NOM]⟩, 2[ACC], 3[*to*]⟩ that we saw in (9), but also with another one lacking the preposition *to* and showing a different word order (a double object valency, cf. (20) above). The two sister valencies of *show* are given in (23).

(23) *show*   ⟨V, 1[NOM]⟩, 2[ACC], 3[*to*]⟩   '1 shows 2 to 3'
      $\approx$ ⟨V, 1[NOM]⟩, 3[ACC], 2[ACC]⟩

This is a schematic representation of the widely discussed contrast between *Kim showed the dog to Lee* and *Kim showed Lee the dog* (known as dative alternation; see §10.1).
    We can see that polyvalent verbs may have different meanings associated with their two sister valencies, as with *trocknen*, or they may have two different sister valencies that basically have the same role meaning (differing perhaps in informational meaning), as with *show* (this difference is discussed further in §12). The integer variables indicate how the semantic roles match across the two valencies.

7. Valency alternations (or pairs of sister constructions)

Just as we can generalize from individual valencies to macro-valency constructions when multiple verbs behave similarly (§5), we can also generalize from individual polyvalent

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[14] The terms *polyvalency* and *polyvalent verb* are introduced here, because they are transparent and no other terms are available for this meaning (*polyvalency* has been used in a similar sense by Heidinger 2019; but note that in French, *polyvalence* simply means 'polysemy').

[15] See Jackendoff & Audring (2020) for the term *sister construction* (Booij 2010 and Booij & Masini (2015) use the equivalent term *second-order schema*).

verbs to valency alternations when there are multiple verbs showing analogous polyvalency patterns. For example, German *trocknen* behaves much like *zerbrechen* 'break (TR/INTR)', *kochen* 'cook (TR/INTR)', *rollen* 'roll (TR/INTR)', and so on. The valency alternation that generalizes over these can be described as in (24), with two sister constructions sharing the same verb (V) and sharing at least one participant role (the participant Y in this example).

(24) German Labile alternation
      $\langle$V, X[NOM], Y[ACC]$\rangle$ 'X causes Y to undergo V'
   $\approx$ $\langle$V, Y[NOM]$\rangle$ 'Y undergoes V'

In general, we can say that a VALENCY ALTERNATION is a pair of sister macro-valency constructions.[16]

Similarly, English *show* behaves much like *give*, *promise*, *teach*, and so on. The general valency alternation, which is widely known as the English *Dative alternation*, can be described as in (25). Recall that we already saw the English Double Object construction, which is the second alternant in (25), in (21) above.

(25) English Dative alternation
      $\langle$V, X[NOM], Y[ACC], Z[*to*]$\rangle$ 'X causes Z to have/experience Y'
   $\approx$ $\langle$V, X[NOM]$\rangle$, Z[ACC], Y[ACC]$\rangle$

As in the macro-valency constructions, we use letter variables (X, Y, Z) here instead of integers, because these patterns generalize over a range of verbs. As in the individual sister valencies in §6, the letter variables match across the two sisters. English has a fairly large number of Dative-alternating verbs (e.g. Levin 1993: 45-48), while German has a more restricted class of Labile verbs.

Such valency alternations are often called "operations", because they can be viewed as directional processes, with one of the valency constructions as basic and the other valency construction as derived from it. Thus, one could say that the German Labile alternation is a "detransitivizing operation" if we view the transitive alternant $\langle$V, X[NOM], Y[ACC]$\rangle$ as basic and the intransitive alternant $\langle$V, Y[NOM]$\rangle$ as derived. However, the opposite directionality is also plausible, and while some authors have cited arguments in favour of one or the other direction of derivation, the literature has not shown any convergence.[17] Thus, it is best to avoid process terminology, or at least to keep in mind that it is largely a matter of convenience and does not imply substantive claims (see also §A.1).

Not only classical alternations like the Dative alternation can be understood as pairs of sister constructions, but this concept can also be applied to English contrasts such as (26a-b), well-known from Goldberg (1995).

(26) a. *She **sneezed**.*
      b. *She **sneezed** the napkin off the table.*

This pair can be said to instantiate the Caused-Motion alternation in (27).

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[16] The term *valency alternation* is well-established (e.g. Butt & King 2006; Doron & Labelle 2011; Malchukov 2015; Kageyama & Jacobsen 2016), though in the earlier literature, it is sometimes used in a way that does not include all voice alternations.

[17] Lehmann (2015: §3.2.1) briefly discusses directionality of alternations in terms of "markedness". But where this is more than asymmetric coding, it is a very delicate criterion (see §8 on voice constructions, where asymmetric coding is the rule).

(27) English Caused-Motion alternation
    ⟨V$_\mu$, X[NOM]⟩   'X acts in a μ manner'
  ≈ ⟨V$_\mu$, X[NOM]⟩, Y[ACC], Z[*DIRECTION*]⟩   'X causes Y to move to Z by
                                               acting in a μ manner'

Goldberg (1995; 2013: §3) argues that this alternation is not a "lexical rule", because such rules are typically seen as processes, and because we do not want to say that (26b) shows a different verb *sneeze* ("zero-derived") from *sneeze* in (26a). On the other hand, Müller & Wechsler (2014) argue that the alternation must be "lexical" in the sense that the Caused-Motion construction must be more abstract than a phrasal pattern. Goldberg (2013: §3.2) adds an intermediate possibility, called "derivational verb template", which seems to be almost exactly the same as what is implied by the alternation in (27).[18]

8. Voice alternations (and voice constructions)

Many languages have valency alternations (pairs of sister valency constructions) where one of the constructions is associated with affixal marking on the verb, and such alternations are called VOICE ALTERNATIONS. We already saw Turkish passive and causative alternations in (2)-(3) above, and there is another example of a passive alternation in (28) below, from Swahili.

(28) a. *Musa **a-li-safisha***   *nyumba.*
       Musa 3SG.HUM-PST-clean   house
       'Musa cleaned the house.'

    b. *Nyumba*   ***i-li-safish-wa***   *na*   *Musa.*
       house   G7-PST-clean-PASS   by   Musa
       'The house was cleaned by Musa.'

The Swahili Passive alternation can be described as in (29). We see that in the Active alternant, the actor argument X appears as a Subject prefix on the verb, while the undergoer argument Y appears as an Object prefix. In the Passive alternant, the verb carries a suffix *-wa*, the actor X is flagged by the oblique preposition *na*, and the undergoer Y appears as a Subject prefix (*i-* in (28b)).

(29) Swahili Passive alternation
    ⟨[SBJ$_x$].[OBJ$_y$].V, X, Y⟩   'X acts on Y'
  ≈ ⟨[SBJ$_y$].V-*wa*, Y, X[*na*]⟩

What is special about such voice alternations is the marking on the verb: A voice alternation is a verb-coded valency alternation. In the literature, the term *verb-coded valency alternation* has in fact frequently been used (e.g. Malchukov 2015), but *voice alternation* is shorter. Until fairly recently, the term *voice* was often restricted to specific subtypes of voice alternations (especially passives and reflexives, as these are often thought to involve inflectional rather than derivational marking), but at the latest since Zúñiga & Kittilä (2019), the broader use of *voice* has become fully established (see also Kulikov's (2011: §3.2) discussion of the narrower and broader sense of *voice*).

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[18] Note that in labile alternations (e.g. German *trocknen* in (21)) and in dative alternations (e.g. English *show* in (23)), we do not normally say that we are dealing with two different verbs, so if the alternation in (26) is treated as in (27), this does not entail that there must be two *sneeze* verbs in English.

While a *voice alternation* is a pair of sister constructions, a *voice construction* (e.g. a passive construction) is a macro-valency construction with verbal marking that indicates how the participants are to be mapped onto the argument positions. When there is no verbal marking, there is no voice construction. Thus, the Swahili Passive construction ⟨[SBJ$_y$].V-*wa*, Y, X[*na*]⟩ is a voice construction (as it contains the voice marker -*wa*), but the Active construction ⟨[SBJ$_x$].[OBJ$_y$].V, X, Y⟩ is not a voice construction. Recall that it was described as an "alternant" above.[19]

A voice alternation is thus a special type of valency alternation, but we have not seen a term for the other type yet: valency alternations that are not verb-coded (sometimes called *uncoded alternations*, e.g. Malchukov 2015). On the basis of the term *polyvalency*, we can call them *polyvalency alternations*. The English Dative alternation and the German Labile alternation are thus examples of polyvalency alternations, and the verbs that participate in them are labile verbs.

Another term that is widely used is *transitivity alternation* (e.g. Haspelmath 1987; Lavidas 2009; Alexiadou et al. 2015), but if it is defined as an alternation in which one of the alternants is transitive and the other alternant is intransitive, then almost all valency alternations are transitivity alternations, so it is not a particularly useful term. (However, dative alternations are not transitivity alternations, because both alternants are usually transitive; see §10.1 below.)

9. Cross-linguistic valency alternation types: Polyvalency alternation types and voice alternation types

So far, we have discussed valencies of individual verbs in individual languages (§2–3, §6) and macro-valency constructions and alternations (§4, §7–8), but all our abstractions have remained at the language-particular level. This was signaled by capitalization as in terms such as "Swahili Passive".

Now we move to the cross-linguistic level, where we need to establish comparative concepts that are defined in a uniform way for all languages. So in addition to characterizing the Turkish Passive or the English Dative alternation, we would like to have rigorously defined terms for cross-linguistic TYPES OF VALENCY ALTERNATIONS. For example, we would like to have a definition of *passive voice construction* as a comparative concept, and of *dative alternation* as a comparative concept.

This means that we need to abstract away from language-particular coding elements such as specific flags (e.g. *on* in the valency of *rely* in (4) above), or specific case labels (nominative, dative, etc.), or specific index types (such as Subject and Object prefixes in Swahili, as seen in (29) above). It is even more important to abstract away from various behavioural properties that have been discussed in the literature of syntactic roles.

The best way to do this is to use the role-types S, A, and P that have been widely used since Comrie (1978) and Dixon (1979), and that I discussed in some detail in an earlier paper (Haspelmath 2011). Basically, an A-argument is an argument in a two-argument clause that is coded like the agent of a typical action verb (a physical-effect verb like 'break' or 'kill'), and a P-argument is an argument that is coded like the patient of such a verb. An S-argument is an argument that is coded like the patient of a change-of-state verb ('fall' or 'die'). By argument coding, we mean argument flagging, argument indexing, or rigid word order. In this way, the major argument types of all languages can be compared straightforwardly, without making use of idiosyncratic criteria.

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[19] This modern terminology is not in line with the older terminology inherited from Latin, where there was an "active voice" and a "passive voice"; see the discussion in §A.2 below.

Thus, both the English valency construction frame ⟨V, X[NOM], Y[ACC]⟩ (in 19b) and the Swahili frame ⟨[SBJ$_x$].[OBJ$_y$].V, X, Y⟩ (in 29) can be mapped onto the cross-linguistic valency construction frame ⟨V, X[A], Y[P]⟩.

Cross-linguistic valency alternation types are best visualized by correspondence diagrams as seen in Figure 4. Vertical diagrams of this type apparently first appeared in Mel'čuk & Xolodovič (1970), and they were again prominently used by Kulikov (2011).[20]

passive voice alternation:

⟨V   A   P⟩
| | |
⟨V-PASS {obl} S⟩

antipassive voice alternation:

⟨V   A   P⟩
| | |
⟨V-ANTP S {obl}⟩

causative voice alternation:

⟨V   S⟩
| |
⟨V-CAUS A P⟩

anticausative voice alternation:

⟨V   A   P⟩
| |
⟨V-ANTC   S⟩

Figure 4: Vertical correspondence diagrams for four alternation types

In the running text, it is more practical to use the kind of notation that is familiar from the earlier sections of this paper, with valency constructions in angle brackets, and correspondences shown by index variables (X, Y, ...) rather than by vertical lines. In the cross-linguistic construction frames, the index variables are best shown in subscript notation, so that ⟨V, X[A], Y[P]⟩ is replaced by ⟨V, A$_X$, P$_Y$⟩. In the following, I will use this notation, because the A and the P role-types are the most salient components of the cross-linguistic construction types.

The sister construction pairs for the four alternation types in Figure 1 are shown in (30).

(30) a. passive   ⟨V, A$_X$, P$_Y$⟩
                ≈ ⟨V-PASS, {obl}$_X$, S$_Y$⟩   '(X) acts on Y' (see also §11.1)

      b. antipassive   ⟨V, A$_X$, P$_Y$⟩
                ≈ ⟨V-ANTP, S$_X$, {obl}$_Y$⟩   'X acts (on Y)' (see also §11.2)

      c. causative   ⟨V, S$_X$⟩   'X acts'
                ≈ ⟨V-CAUS, A$_Z$, P$_X$⟩   'Z makes X act' (see also §11.3)

      d. anticausative ⟨V, A$_X$, P$_Y$⟩   'X causes Y to change'
                ≈ ⟨V-ANTC, S$_Y$⟩   'Y changes' (see also §11.4)

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[20] Note that these correspondence diagrams are quite different from the linking diagrams in Figures 1-3 above. They show the correspondence between two sister valency construction types, whereas the linking diagrams show how the participants link to the argument positions.

In the remainder of this paper, I will use the notation with subscript variables for ease of presentation, but for didactic purposes, they can always be transformed into vertical diagrams, as in Figure 4.

10. Polyvalency alternation types

In this section, we take a closer look at a range of polyvalency alternation types, i.e. cross-linguistic alternation types where none of the alternants has special verb coding. Voice alternation types will be the topic of §11.

10.1. Dative alternations

Perhaps the best-known alternation type is the dative alternation, well-known from English (see (25) above), where a dative-marked argument alternates with one that is marked in the same way as the P-argument. The alternation type is characterized in (31).

(31) **dative alternation**
$\langle V, A_X, P_Y, \textit{dative}_Z \rangle$ 'X causes Z to have Y'
$\approx \langle V, A_X, P_Y, P_Z \rangle$

Note that a dative flag can be an adposition or a case-marker (Haspelmath & Malchukov 2022). An example of a dative alternation from Mandarin Chinese is given in (32a-b).

(32) Dative alternation in Mandarin Chinese (Li & Thompson 1981: 376)
  a. 我送了他一瓶酒。
    Wǒ **sòng**-*le* *tā* *yī* *píng* *jiǔ.*
    I   give-PFV 3SG   one   bottle wine
    'I gave him a bottle of wine.'

  b. 我送了他一瓶酒給他。
    Wǒ **sòng**-*le* *yī* *píng* *jiǔ* *gěi* *tā.*
    I   give-PFV one   bottle wine   to   3SG
    'I gave a bottle of wine to him.'

Dative alternations are not very frequent in the world's languages (Siewierska (1998: 179) only found them in 6% in her sample of over 200 languages), and in most languages where such valency correspondences occur, the double object alternant is applicative-marked (see §11.7 below). But they have been discussed widely in the literature (see Haspelmath & Malchukov 2022: Ch. 6).

10.2. Locative alternations

In a locative alternation, one alternant has an allative-marked argument (denoting a location) and a theme P-argument, while the other alternant shows the location-denoting argument in P role and the theme coded as an oblique argument.

(33) **locative alternation**
$\langle V, A_X, P_Y, \textit{allative}_Z \rangle$ 'X causes Y to move to Z'
$\approx \langle V, A_X, P_Z, \textit{obl}_Y \rangle$ ('X causes Z to contain Z')

(34)   Locative alternation of English
  a. *We **loaded** hay onto the wagon.*
  b. *We **loaded** the wagon with hay.*

Locative alternations have not been studied extensively from a cross-linguistic perspective yet (but see Kim 1999). Examples from Polish and Japanese are in (35) and (36).

(35) Polish Locative alternation (Lewandowski 2014: 871)
  a. *Jan   ładował   siano   na   wóz.*
     Jan   loaded   hay.ACC on   cart
     'Jan loaded hay onto the cart.'

  b. *Jan   ładował   wóz   sian-em.*
     Jan   loaded   cart   hay-INS
     'Jan loaded hay onto the cart.'

(36) Japanese Locative alternation (Iwata 2008: 169)
  a. 壁に ペンキを 塗る
     *kabe-ni   penki-o   **nuru***
     wall-LOC   paint-ACC   smear
     'smear paint on the wall'

  b. 壁を ペンキで 塗る
     *kabe-o   penki-de   **nuru***
     wall-ACC   paint-INS   smear
     'smear the wall with paint'

It appears that in most languages where such valency correspondences occur, they are applicative-marked (see §11.7 below, example (68)).[21]

10.3. Labile alternations

Many languages have verbs that can refer to a caused event (and be used transitively), or to the base event without the causal component (and be used intransitively). A paradigm case is English *break*, which can mean 'become broken' or 'cause to become broken'. Such verbs are called *labile verbs*, and we can call the cross-linguistic alternation type *labile alternation*. We already saw the German Labile alternation in (24).

(36)   **labile alternation**
      $\langle$V, A$_X$, P$_Y\rangle$ 'X makes Y change'
  $\approx$ $\langle$V, S$_Y\rangle$ 'Y changes'

The term *labile* comes from Russian linguistics, and it has recently been used for cross-linguistic studies (Letuchiy 2009; Kulikov & Lavidas 2014). In the earlier literature, the

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[21] In fact, since most studies of such correspondences are interested in the semantic effect and not in the verbal marking, it may make more sense to use the term *locative alternation* in a broader sense, to encompass both verb-coded and uncoded alternations. The English/Japanese polyvalency type where the verb is not marked could then be called *polylocative alternation*.

term does not have a very stable meaning,[22] but the core phenomenon characterized by (36) is always present and is clearly the most prominent type. Thus, I propose that the term should be limited to such alternations. An alternative term used by some typologists is "S=P ambitransitive" (e.g. Dixon & Aikhenvald 2000: 4-6).[23]

The valency correspondence of the labile alternation type also occurs in anticausative alternations (§11.4) and some causative alternations (§11.3), and all alternations with the correspondence $\langle A_X, P_Y \rangle \approx \langle S_Y \rangle$ have sometimes been subsumed under the label *causative-inchoative alternation* (e.g. Haspelmath 1993a; Levin 1993: 27-30) or *causal-noncausal alternation* (Haspelmath et al. 2014).

10.4. Oblipatient alternations ("conative alternations")

An alternation type that is better known under the label *conative alternation* is shown in (37). In the oblipatient alternation, there is a transitive alternant with A and P, and an intransitive alternant in which the patient argument is coded with an oblique flag (hence the term OBLIPATIENT, introduced here). A well-known English example is *Paula hit the fence ~ Paula hit at the fence*.

(37) **oblipatient alternation**
    $\langle V, A_X, P_Y \rangle$ 'X acts on Y'
 $\approx$ $\langle V, S_X, obl_Y \rangle$

Another example comes from Kalkatungu, a Pama-Nyungan language of Australia.

(38) Kalkatungu (Blake 1982: 86)
    a. *Tuka-yu   tuar   ityayi.*
       dog-ERG   snake.ABS   bite
       'The dog bites/bit the snake.'

    b. *Tuku   tuar-ku   ityayi.*
       dog.ABS   snake-DAT   bite
       'The dog is biting the snake.'

The earlier term *conative alternation*, which has been current for English (Levin 1993: 41-42), does not seem to be appropriate for the alternation type in general, because the "attempt" meaning (Vincent 2013) is not present in all languages where a patient/oblique polyvalency alternation of this type exists.

10.4. Obliagent alternations ("uncoded passive alternations")

The mirror image of the oblipatient alternation is what I call here OBLIAGENT ALTERNATION. There is again a transitive alternant with A and P, but in the intransitive alternant, it is the agent that is coded with an oblique flag (hence the term OBLIPATIENT, introduced here).

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[22] In particular, verbs that can occur with both the pattern $\langle V, A_X, P_Y \rangle$ and the pattern $\langle V, S_X \rangle$ (*she eats soup/she eats*) have sometimes been included, so that *labile* would have the same meaning as *ambitransitive* (Dixon & Aikhenvald 2000: 4), and one would have to distinguish between "S=P labile" and "S=A labile" alternations (or verbs). However, there is a big difference between *break*-type verbs and *eat*-type verbs, so a highly general "labile/ambitransitive" concept is not very useful (*pace* Letuchiy 2009). Verbs of the *eat* type are discussed below in §13.
[23] Dixon & Aikhenvald use "S=O" instead of "S=P", but the difference between "O" and "P" is merely notational and is ignored here.

(39) **obliagent alternation**

$\langle V, A_X, P_Y \rangle$ 'X acts on Y'
$\approx \langle V, S_Y, \{obl_X\} \rangle$

An example comes from Bambara, a Mande language. Such constructions have also been called "uncoded passives" (see, e.g., Legate 2021: §2.3 on Acehnese), but it is best to use a new term for such polyvalency alternations.

(40) Bambara (Cobbinah & Lüpke 2012: 136)
    a. *Ù bɛ ɲɔ̀ dan.*
       3PL PRS millet sow
       'They sow millet.'

    b. *Ɲɔ̀ bɛ dan (u fɛ̀).*
       millet PRS sow (they by)
       'Millet is sown (by them).'

11. Voice alternation types

After briefly reviewing a few major polyvalency alternation types in §10, we will now look in some more detail at the major voice (alternation) types. In most cases, voice alternations have asymmetrical verb coding, so that one of the sister constructions lacks verb coding. In such cases, we say that the uncoded alternant is the *basic construction*, and we can use metaphorical process terminology ("the basic P is promoted to S", and so on). (Symmetrical voice alternations, which lack an uncoded alternant, will be briefly discussed in §11.8 below).

11.1. Passive voice alternations

By far the most prominent voice type is the passive alternation. The uncoded alternant is transitive, and in the passive alternant (the passive voice construction), the basic P becomes an S (or "is promoted to S"), and the basic A is DOWNGRADED. Downgrading means either (i) DEMOTION to an optional oblique-coded argument, or (ii) SUPPRESSION, i.e. inability to be overtly instantiated. The notation proposed here is shown in (41). The curly brackets are meant to show that the argument may be suppressed in some languages.

(41) **passive alternation**

$\langle V, A_X, P_Y \rangle$ '(X) acts on Y'
$\approx \langle V\text{-PASS}, \{obl\}_X, S_Y \rangle$

Examples from Turkish and Swahili, respectively, were seen in (2) and (29), and another example of a passive from Yucatec Maya is shown in (42). These three examples show a DEMOTED (oblique-flagged) agent nominal, which is optional.[24]

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[24] It should be noted that according to the alternation schema in (41), the passive agent is stil an argument (included in the valency construction) and has not become an "adjunct", as has sometimes been said. Riesberg (2014b) provides detailed discussion of this important point. Demotion means change from core to oblique, not from argument to modifier or "adjunct".

(42) Yucatec Maya (Lehmann 2015b: 1437; 1448)

    a. *t-u*   *méek'-ah*   *u*   *chaan xibpal le*   *maamah-o'*
       PFV-SBJ.3 hug-CMPL POSS.3 little   boy   DEM mother-D2
       'the mother hugged her little boy'

    b. *h*   *méek'-ab*   *le*   *chaan xibpal*   *tuméen u*   *maamah-o'*
       PFV hug-CMPL.PASS DEM little boy   by   POSS.3 mother-D2
       'the little boy was hugged by his mother'

In other languages, the passive agent cannot be expressed at all, i.e. it is SUPPRESSED. An example of an agent-suppressing passive construction comes from Standard Arabic, where it would not be possible to add an agent (e.g. 'the door was opened by the girl').[25]

(43) Standard Arabic (Ryding 2005: 658)

    a. فتحت الباب
       Fataḥ-tu   *l-baab-a.*
       open.ACT.PRF-1SG   DEF-door-ACC.
       'I opened the door.'

    b. فُتح الباب
       Futiḥ-a   *l-baab-u.*
       open.PASS.PRF-3SG   DEF-door-NOM
       'The door was opened.'

As passive alternations have been so prominent in the general literature since the 1960s, let us briefly compare the description of the general passive alternation in (41) (and Figure 4 above) with those of some earlier authors.

    In one of the earliest papers in Relational Grammar (RG), Perlmutter & Postal (1977: §5.2) proposed "a language-independent characterization of passivization", which is roughly as in (44) (I leave out many technical details). The integers "1" and "2" are used for *subject* and *object* in RG.

(44)   **passive clause (RG)**
       A passive clause is one whose relational network contains these two strata:

	arc I	arc II
earlier stratum:	1 (subject)	2 (object)
following stratum:		1 (subject)

This is similar to (41) in that the "2 (object)" of the transitive clause becomes the "1 (subject)" of the passive clause, and the original 1 does not appear as a core argument (as "a term", in RG parlance). The two arcs I and II correspond to the two variable letters X and Y. But (41) is simpler in that it does not require any directionality (no "earlier" or "later" stratum), and it replaces the universal "subject" and "object" by A/S and P (for the reasons given in Foley & Van Valin 1977; Comrie 1978; and related work). The role-types A, S, and P are comparative concepts, not universal innate building blocks (Haspelmath 2011).

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[25] The Arabic passive of the *CuCiC*- type (*futiḥa* 'was opened') does not conform strictly to the definition in (41) because there is no passive marker. It would be cumbersome to extend the definition (by talking about "asymmetric marking which can be of the non-additive type"), so I do not do this here. Constructions of this type in which the valency change is reflected in a stem change are very rare (but see also (49b) from Yucatec Maya below).

In one of the foundational papers of Lexical-Functional Grammar (LFG), Bresnan (1982: 9) presented a description of passivization in English, shown in (45).

(45)   **effects of passivization on lexical form (LFG)**
   L   ((SUBJ),   (OBJ)) →
        agent   theme

   L   ((OBL/Ø),   (SUBJ))
        agent   theme

This is again similar, but different in that the place of the variable letters X and Y in (41) (and of the two arcs I and II in (44)) is taken by the semantic role labels "agent" and "theme". It might seem that an important advantage of this is that the two argument positions are not arbitrary but semantically grounded. However, the same effect is achieved by the semantically grounded definitions of the role-types A, S, and P. The latter have the advantage of being formally defined (by the coding properties of agents and patients; see §9), so that transitive constructions where the roles are different from "agent" and "theme" are included as well. In (41), it may appear that the meanings of X and Y are given via the construction meaning '(X) acts on Y', but this construction meaning is actually not crucial here (it could be replaced by '(X) verbs Y').

   As the term *passive* is so well-known, it has been extended to a heterogenous set of other phenomena: Siewierska (1984: 2) noted that "the term *passive* has been used to cover a wide variety of constructions in many different languages". But it is best to restrict it to the traditional core, and not to include, for example, obliagent alternations (§10.4) or desubjective alternations (§11.6 below).[26] Some authors distinguish between "canonical" and "noncanonical" passives (Siewierska & Bakker 2013; Legate 2021), but it is better to use different terms for constructions that do not fall under (41).

11.2. Antipassive voice alternation

Antipassive alternations are the mirror image of passive alternations: The uncoded alternant is again transitive, but the counterpart of the basic P is downgraded (demoted or suppressed) in the antipassive construction, while the counterpart of the basic A is promoted to an S-argument.

(46)   **antipassive alternation**
   ⟨V, A$_X$, P$_Y$⟩   'X acts (on Y)'
   ≈ ⟨V-ANTP, S$_X$, {obl}$_Y$⟩

---

[26] In Mandarin and other Chinese languages, there is a construction that is typically called "passive", but that does not fall under the definition in (41) either. This construction includes a form *bèi* which precedes the counterpart of the transitive A-argument, and which occurs even when this argument is omitted. The form *bèi* is thus neither a verbal voice marker nor a preposition, but we are dealing with a sui generis construction; see also Bruening & Tran (2015) for the analogous situation in Vietnamese. (The Chinese examples below are from Chao Li.)

(i)   *Jǐngchá   tuōzǒu-le tā-de   chē.*
       police   tow-PFV   he-GEN   car
       'The police towed his car.'

(ii)   *Tā-de   chē   bèi   (jǐngchá) tuōzǒu-le.*
       he-GEN   car   BEI   police   tow-PFV
       'His car was towed by the police.'

Examples of P-demoting antipassive alternations are given in (47) and (48). In the most stereotypical case, an antipassive construction shows absolutive case on its S-argument contrasting with ergative case on the transitive A-argument, as seen in Warronggo, a Pama-Nyungan language.

(47) Warronggo (Tsunoda 2011: 428)
    a. *Bama-nggo*   *gamo-Ø*   *yangga-n.*
       man-ERG   water-ABS   search-NF
      'The man looked for water.'

    b. *Bama-Ø*   *gamo-wu*   *yangga-gali-n.*
       man-ABS   water-DAT   search-ANTP-NF
      'The man looked for water.'

However, since Janic (2016), it has been widely recognized that the definition of antipassive involves promotion of A to S and demotion of P to oblique, but does not make any reference to specific cases. In languages with an ergative transitive construction like Warronggo, both A-to-S promotion and P-to-oblique demotion can be seen in the case marking, but in languages with accusative (or neutral) alignment, we observe only the P-to-oblique demotion in the argument flagging. An example comes from Soninke, a Mande language.

(48) Soninke (Creissels 2021: 307)
    a. *Hàatú dà*   *yúgó **sàará**   dáàrú.*
       Fatou CPL.TR   male give.birth   yesterday
      'Fatou gave birth to a boy yesterday.'

    b. *Hàatú **sàar-é**   tì   lénñúgó yì.*
       Fatou give.birth-ANTP   with   son   POSTP
      'Fatou gave birth to a son.'

    An example of a P-suppressing antipassive construction comes from Ulwa, a language of Papua New Guinea.

(49) Ulwa (Barlow 2019: 8)
    a. *mï*   *wat*   ***ma=ita-p***
      3SG   ladder   3SG.OBJ=build-PRF
      'He built the ladder.'

    b. *mï*   ***na-ita-p***
      3SG   ANTP-build-C
      'He built (something).'

This patient-suppressing antipassive construction is analogous to the agent-suppressing passive that we saw in (43) above. Heaton (2020: §2.2) notes that patient-suppressing antipassives (also called "absolute antipassives", or "deobjective constructions") are actually much more common than patient-demoting antipassives.
    Lehmann (2015a: 1573-1574) cites the analogous example in (50) from Yucatec Maya, and claims that it is different from an antipassive, because the patient slot is "blocked". He calls this alternation *introversion* and sees it as parallel to the anticausative alternation, where the agent slot is removed from the semantic roles (2015a: 1550).

(50) Yucatec Maya

    a. *K-in*   **xok-ik**   *le*   *analte'-a'*.
       IMPF-1SG   read-INCMPL   DEM book-DET1
       'I read this book.'

    b. *K-in*   **xook-Ø.**
       IMPF-1SG   read\INTROV-INCMPL
       'I read.' (OR: 'I study.')

However, while a causing agent can be removed along with the causing event from the event structure, it is harder to see how a patient could be REMOVED from the semantic roles (when one reads, one must read something; see also §12 below on role removal). So I see no clear counterpart of the anticausative/passive distinction in the antipassive domain, and I would regard (50) as a patient-suppressing antipassive.

Like the term *passive*, the term *antipassive* has been used widely for constructions that exhibit some similarities to the classical cases (those in (47)-(49)) (see Heaton 2020; Janic & Witzlack-Makarevich 2021). But again, it is best to limit its application strictly to constructions that meet the classical conditions (verbal marking, oblique coding of the counterpart of the basic P, or suppression of the basic P). In particular, oblipatient alternations of the type seen in §10.4 should not be included here, because we do not want to say that English *she hit at the dog* is an antipassive construction (anymore than we want to say that English *the stick broke* is a passive construction).

Before moving on to other voice constructions, I should note here that the scope of this paper is deliberately limited to the grammatical properties of voice constructions, and that I do not consider the discourse-pragmatic effects that have often been the focus of the discussion of voice constructions (e.g. Foley & Van Valin 1985; Givón (ed.) 1994; Shibatani 2006). These effects are central for understanding these constructions in particular languages, and perhaps also cross-linguistically. But recall that this paper does not discuss explanatory theories, and voice constructions are not *defined* by their discourse-pragmatic effects. Constructions which signal that the patient argument is topic can be of various kinds, and they are called passive only if they fall under the schema in (41).

11.3. Causative voice alternations

In a causative alternation, the verb-coded alternant includes an additional participant, the causer, which corresponds to a new argument position in the valency construction. If the uncoded alternant is intransitive, then its S-argument (the causee) is demoted to a P-argument in the causative alternant.

(50) **causative alternation (intransitive-based)**
      $\langle V, S_X \rangle$ 'X acts'
  $\approx$ $\langle V\text{-CAUS}, A_Z, P_X \rangle$ 'Z makes X act'

We saw an example from Turkish of such an intransitive-based causative construction in (2) above, and another example is given in (51).

(51) Yauyos Quechua (Shimelman 2017: 215)
    a. *¿Ayvis* **waqa-nki-chu**?
       sometimes cry-2-Q
       'Do you cry sometimes?'

    b. *¿Imash* **waqa-chi-shu-nki**?
       what cry-CAUS-2.OBJ-3.SBJ
       'What makes you cry?'

The definition in (50) is a perfect mirror image of the anticausative (which we will see below in §11.4), as we already saw in the vertical diagram in Figure 2. But in actual fact, causative voice constructions can alternate with transitive constructions as well, as shown in (52).

(52) **causative alternation (transitive-based)**
    ⟨V, A_X, P_Y⟩   'X acts on Y'
  ≈ ⟨V-CAUS, A_Z, P/*dative*$_X$, P_Y⟩ 'Z makes X act on Y'

In such constructions, the causee (the counterpart of the A-argument in the uncoded alternant) may become a second P-argument, or it may be dative-coded. An example of the first type is given in (53), and an example of the second type is given in (54).

(53) Korean (Kozinsky & Polinsky 1993: 184)
    a. *(Ku) ai-ka chayk-ul* **ilk-ess-ta**.
       this child-NOM book-ACC read-PST-DECL
       '(This) child read a/the book.'

    b. *Emeni-ka ai-lul chayk-ul* **ilk-key hay-ess-ta**.
       mother-NOM child-ACC book-ACC read-PURP do-PST-DECL
       'Mother made the child read the book.'

(54) Sanzhi Dargwa (Forker 2019: 99)
    a. *Madina-l kaš* **buk-unne=de.**
       Madina-ERG porridge eat-CVB=PST
       'Madina was eating porridge.'

    b. *Aba-l Madina-c:e kaš* **berk-aq-un.**
       mother-ERG Madina-ILLAT porridge eat-CAUS-AOR
       'Mother made Madina eat porridge.'

One could try to generalize over (52) and (50), but as it involves further abstractions that play no role elsewhere, I will not do this here (see Kulikov 2011: xxx). Causative constructions are not conceptually challenging, and the term *causative* is used quite consistently in the literature. They are not often treated as voice constructions (though this has long been common in the Russian tradition, see Xolodovič (ed.) 1969), and they are different from passives and antipassives in that they often involve causative auxiliary verbs ('make', 'cause'). Strictly speaking, such "analytic" causative constructions do not fall under the definitions in (50) and (52), but again, there is no need here to attempt a definition that generalizes further.[27]

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[27] Many authors have also used the term *causative* for "lexical causatives" such as *kill* (vs. *die*). I find this confusing, because there are many transitive verbs that contain a causal component (e.g. *wash* or *cut*), and

11.4. Anticausative alternations

In an anticausative alternation (Haspelmath 1987; Koontz-Garboden 2009), the coded alternant lacks a causer participant which is present in the uncoded alternant. In fact, the entire causing subevent is eliminated from the anticausative alternant.

(55) **anticausative alternation**
$\langle V, A_X, P_Y \rangle$ 'X causes Y to change'
$\approx \langle V\text{-ANTC}, S_Y \rangle$ 'Y changes'

Examples of basic/anticausative verb pairs from different languages are given in (56).

(56) basic/anticausative verb pairs

Russian	*otkryt'*	*otkryt'-sja*	'open (TR/INTR)'
Gothic	*andbind(an)*	*andbund-n(an)*	'loosen (TR/INTR)'
Hebrew	*pirek*	*hit-parek*	'dismantle/fall apart'
Swahili	*vunja*	*vunj-ika*	'break (TR/INTR)'
Japanese	*hiraku*	*hirak-eru*	'open (tr/intr)'

Anticausative voice markers are often identical to reflexive voice markers (as in Russian -*sja*), so this voice construction was not generally recognized until the 1980s, even though it widely occurs in European languages (the term *anticausative* was coined by Nedjalkov & Sil'nickij 1969: 25). In contrast to passive constructions, however, anticausative constructions are typically limited to a smallish subset of transitive verbs (verbs of causation without agent-specific meaning components).

The valency correspondences of anticausative alternations are the same as those of labile alternations, so anticausative and labile alternations have been subsumed under the cover term *causative-inchoative alternation* (as noted above in §10.3; or simply *causative alternation*, cf. Schäfer 2009). And since English lacks an anticausative construction but the term is very salient, some authors have extended it to the English Labile alternation. But the more specific sense in (55) is historically earlier (Nadjalkov & Sil'nickij 1969; Haspelmath 1987) and quite parallel to the *passive/antipassive* contrast (see Figure 4), so it is better to keep it and to use the term *labile* for English *break*-type verbs (§10.3).

11.5. Reflexive voice alternations

In a reflexive voice construction (e.g. Geniušienė 1987; Haspelmath 2021), the coded alternant has a single participant (coded like an intransitive S) which corresponds both to the agent and patient of the uncoded alternant. In many languages, the reflexive voice forms also have other meanings (of the "middle" domain), but these are left aside here.

(57) **reflexive voice alternation**
$\langle V, A_X, P_Y \rangle$ 'X acts on Y'
$\approx \langle V\text{-REFL}, S_{X=Y} \rangle$ 'X=Y acts on self'

Examples come from Anindilyakwa (an Australian language, in 58) and Hungarian (in 59).

I prefer the general term *causal-noncausal alternation* (§10.3) for alternations such as *kill/die*. The term *causative* is best limited to forms that have overt marking of the causal meaning.

(58) Anindilyakwa (van Egmond 2021)
    a. *nə-ma-jungwa-ju-wa*
       3SG.M.SBJ-3.OBJ-die-CAUS-PST
       'he killed it'

    b. *nə-jungwa-ja-**jungu**-na*
       3SG.M.SBJ-die-CAUS-REFL-PST
       'he killed himself'

(59) Hungarian (Rákosi 2008)
    a. *borotvál-*
       'shave'

    b. *borotvál-**koz**-*
       'shave (oneself)'

Reflexive voice alternations are neither participant-preserving nor participant-changing, but can be said to be participant-merging. Another voice type that is similar in a number of respects to reflexive voice constructions is reciprocal voice constructions.

11.6. Desubjective voice alternations

In a desubjective alternation, the subject of the uncoded alternant is downgraded, i.e. either demoted to an oblique-marked argument or suppressed. Desubjective alternations are thus similar to passive alternations (§11.1), but the P-argument is not promoted to S but remains a P.

(60) **desubjective alternation**
      ⟨V, A$_X$, P$_Y$⟩   'X acts on Y'
  ≈ ⟨V-DESUBJ, {obl}$_X$, P$_Y$⟩

An example comes from Irish, where the the desubjective (or "impersonal passive") form in (61b) combines with an optional oblique agent (*le Liam* 'by Bill') and an object-like patient (*Seán*). Irish has VSO order with full nominal arguments, but when the object is a personal pronoun, it occurs in final position, so we see in (61c) that the patient nominal is a P-argument, and not an S-argument (Noonan 1994: 285-286).

(61) Irish (Noonan 1994: 280; 286)
    a. ***Bhuail** Liam Seán.*
       hit.PST Bill John
       'Bill hit John.'

    b. ***Bual-adh** Seán (le Liam).*
       hit-DESUBJ John by Bill
       'John was hit (by Bill).'

    c. ***Tug-adh** abhaile inniu í.*
       bring-DESUBJ home today her.OBJ
       'She was brought home today.'

In the literature, we often find terms such as "impersonal passive" or "subjectless passive" for such alternations (see also Legate 2021: §2.2 for "non-promotional passives"). But as we saw in §11.1, the term "passive" should be reserved for classical constructions with P promotion. The term *desubjective* was first introduced in Haspelmath (1990: 34).

11.7. Applicative voice alternations

In an applicative alternation (Peterson 2007), the verb-coded alternant is transitive with an A and a P, and the A corresponds to the S in the uncoded alternant. The applicative's P (also called *applied object*) corresponds to an oblique argument in the uncoded alternant, or it has no counterpart.

(62) **applicative alternation (intransitive-based)**
$\langle$V, S$_X$, {obl}$_Y\rangle \sim$ 'X acts (with respect to Y)'
$\approx \langle$V-APPL, A$_X$, P$_Y\rangle$ 'X acts with respect to Y'

The definition here says nothing about the semantic role of the second argument Y, which is most often a beneficiary, a location or an accompanier (the corresponding applicatives are also called *benefactive applicative*, *locative applicative* and *comitative applicative*). Examples of intransitive-based applicatives come from Yaqui (Uto-Aztecan) and Taba (Austronesian).

(63) Yaqui (Guerrero 2019: 457)
    a. *Maria   ye'e-k   Goyo-tabetchi'ibo.*
        Maria   dance-PFV Goyo-for
        'Maria danced for (OR: instead of) Goyo.'

    b. *Maria   Goyo-ta   yi'i-ria-k.*
        Maria   Goyo-ACC dance-APPL-PFV
        'Maria danced for Goyo.'

(64) Taba (Bowden 2001: 206)
    a. *N=amlih.*
        3SG=laugh
        'She is laughing.'

    b. *N=amli-ak   tit.*
        3SG=laugh-APPL   we.INCL
        'She is laughing at us.'

When the uncoded alternant is transitive, we get two different possibilities, as in the case of causatives (§11.3): The participant that is absent or oblique-coded in the uncoded alternant promoted to P (the *applied object*), while the basic P may remain a P or may be oblique-coded.

(65) **applicative alternation (transitive-based)**
$\langle$V, A$_X$, P$_Z$, {obl}$_Y\rangle \sim$ 'X acts (with respect to Y)'
$\approx \langle$V-APPL, A$_X$, P$_Y$, P/obl$_Z\rangle$ 'X acts with respect to Y'

An example of a transitive-based applicative where the basic P remains a P comes from Hakha Lai, a Trans-Himalayan language of Myanmar.

(66) Hakha Lai (Peterson 2007: 18-19)
  a. *Kayma?=hee ka-law   ?an-**thlaw**.*
     I=COM   1SG.POSS-field   3PL.SBJ-weed
     'They weeded my field together with me.'

  b. *Ka-law   ?an-ka-**thlo?**-pii.*
     1SG.POSS-field   3PL.SBJ-1SG.OBJ-weed-COM.APPL
     'They weeded my field (together) with me.'

The basic P is demoted to an oblique nominal (flagged by the preposition *?ə*) in Halkomelem, a Salishan language of British Columbia.

(67) Halkomelem (Gerdts & Kiyosawa 2005: 329)
  a. *Ni? **ləkʷ-at-əs**   kʷθə sćešt.*
     AUX   break-TR-3.ERG   DET   stick
     'She broke the stick.'

  b. *Ni? **ləkʷ-əlc-t-əs**   tᶿə   swiẃləs ?ə   kʷθə   sćešt.*
     AUX   break-BEN.APPL-TR-3.ERG   DET   boy   OBL   DET   stick
     'She broke the stick for the boy.'

Similarly in (68) from German, the original P becomes an oblique (instrumental) nominal, coded with the preposition *mit*. (For German applicatives, see Michaelis & Ruppenhofer 2001.)

(68) German
    a. *Ich **schreibe** Buchstaben auf das Papier.*
       I   write   letters   on   the paper
       'I write letters on the paper.'

    b. *Ich **be-schreibe** das Papier mit Buchstaben.*
       I   APPL-write   the paper with letters
       'I write letters on the paper.' ('I cover the paper writing with letters.')

11.8. Symmetrical voice alternations and indeterminate transitivity

We said at the beginning of this section that a voice alternation is defined as an alternation in which one of the sister constructions has a voice marker on the verb. In most such cases, the other sister construction has no verb coding and is *basic* in this sense (when it contrasts with a passive construction, it is traditionally called "active"). In this subsection, we will briefly consider SYMMETRICAL VOICE ALTERNATIONS (Foley 2008), where both alternants are verb-coded. This situation is well-known from western Austronesian languages of the Formosan-Philippinic type, e.g. Tagalog. In (69a-c), we see the Actor Voice construction, the Patient Voice construction, and the Locative Voice construction.

(69) Tagalog (Foley 2008: 23)
    a. ***B⟨um⟩ili***   ng   isda sa   tindahan   ang   lalake.*
       ⟨ACTVOICE⟩buy   ACC fish LOC   store   NOM   man
       'The man bought fish in the store.'

b. ***Bibilh-in***   *ng*   *lalake*   *sa*   *tindahan*   *ang*   *isda.*
    buy.FUT-PATVOICE   ERG   man   LOC   store   NOM   fish
    'The man will buy fish in the store.'

c. ***Bibilh-an***   *ng*   *lalake*   *ng*   *isda*   *ang*   *tindahan.*
    buy.FUT-LOCVOICE   ERG   man   ACC   fish   NOM   store
    'The man will buy fish in the store.'

The three-way alternation can be described as in (70). (Note that in Tagalog, Ergative and Accusative case are both represented by the preposition *ng*, but they are kept apart in many related languages.)

(70) **Tagalog Actor/Patient/Locative Voice**
      ⟨V-ACTORVOICE, X[NOM], Y[ACC], Z[LOC]⟩   'X acts on Y at Z'
   ≈ ⟨V-PATIENTVOICE, X[ERG], Y[NOM], Z[LOC]⟩
   ≈ ⟨V-LOCATIVEVOICE, X[ERG], Y[ACC], Z[NOM]⟩

The Patient Voice construction has sometimes been regarded as a kind of passive, and/or the Actor Voice construction as a kind of antipassive, but they do not fall under these comparative concepts, because there is no corresponding unmarked sister construction. This is thus a a symmetrical voice system, rather than an asymmetrical system of the more familiar type.[28]

In addition to lacking a construction without voice coding, Tagalog and many languages like it do not have a clearly DOMINANT agent-patient construction. Both the Actor Voice construction and the Patient Voice construction are fairly frequent in discourse. But since the term *transitive* is defined in terms of A and P (Haspelmath 2011: 562), and A/P are defined in terms of the dominant agent-patient construction, Tagalog is INDETERMINATE with respect to transitivity – none of its valency constructions are transitive.[29]

Indeterminate transitivity need not be linked to symmetrical voice constructions. In some other western Austronesian languages, there are two sister valencies of which neither is dominant (as in Tagalog), but which are not symmetrically coded. For example, Balinese has a construction with a nasal Actor Voice prefix with SVO order (in 71a), and there is another construction with OVS order and no nasal prefix on the verb (in 71b). The latter is typically called Object Voice construction (see also Arka 2019).

(71) Balinese (Artawa 2013: 5)
   a. *Tiang* ***n-godot***   *be.*
      I   ACTVOICE-cut   meat
      'I cut some meat.' (SVO)

   b. *Be-ne*   ***godot***   *tiang.*
      meat-DEF   cut   I
      'I cut the meat.' (OVS)

---

[28] In the earlier literature, there are of course many descriptions of Formosan-Philippinic languages using the terms "passive", "antipassive" and/or "applicative" (as discussed by Foley 2008; Riesberg 2014a; Chen & McDonnell 2019; Zúñiga & Kittilä 2019: § 4.1; among many others). Since Himmelmann (2005) and Foley (2008), descriptions in terms of symmetrical voice, which are less rooted in concepts from European or North American languages, have become more and more widespread for Austronesian languages.

[29] Other authors have said that there are several transitive constructions in Formosan-Philippinic languages (e.g. Chen & McDonnell 2019: §4.3), but it is unclear on which general definition of *transitive* this might be based.

This alternation can be described as in (72), where PIVOT refers to the immediately preverbal argument that has some reference-related subject-like properties. CORETERM is an ad hoc term for the postverbal argument, i.e. the patient in (71a) and the agent in (71b).

(72) **Balinese Actor-voice/Object-voice alternation**
⟨ACTORVOICE-V, X[PIVOT], Y[CORETERM]⟩　　　'X acts on Y'
≈ ⟨V, Y[PIVOT], X[CORETERM]⟩

The Actor Voice construction is not an antipassive construction because the patient is not oblique-coded, and the Patient Voice construction is not even a voice construction because there is no verb coding. None of the constructions is substantially less frequent than the other, so we cannot say that one is dominant, and hence we cannot identify one or the other of them as transitive. The alternation in (72) is asymmetrically coded and is thus a voice alternation, but it does not fit into any of the traditional subtypes.

12. Role-relinking and role-manipulating alternations

Many authors make a distinction between (i) those kinds of alternations in which the semantic roles are the same in both alternant constructions, and the change consists in a different linking pattern (ROLE-RELINKING ALTERNATIONS), and (ii) those kinds of alternations in which the semantic roles are not the same (ROLE-MANIPULATING ALTERNATIONS).

For asymmetrically coded voice constructions (where there is directionality), we can further distinguish two subtypes of role-manipulating voices: (ii-a) ROLE-INSTALLING VOICES (which contain a semantic role not contained in the uncoded alternant) and (ii-b) ROLE-REMOVING VOICES (which lack one of the roles contained in the uncoded alternant).

Let us look at a few concrete examples of these subtypes of alternations. The most stereotypical example of a relinking alternation type is the passive alternation, when it is not agent-suppressing.

(73) role-relinking alternation: **passive alternation** (§11.1)

⟨V,　　　A$_X$,　　P$_Y$⟩　　　'(X) acts on Y'
≈ ⟨V-PASS, obl$_X$,　S$_Y$⟩

Another example is the dative alternation:

(74) role-relinking alternation: **dative alternation** (§10.1)

⟨V, A$_X$,　P$_Y$, *dat$_Z$*⟩　　　'X causes Z to have Y'
≈ ⟨V, A$_X$,　P$_Y$, P$_Z$⟩

In order to describe role-relinking alternations, only a single meaning is required (given in the first line of (73) and (74)), because there is no substantial semantic contrast. There may of course be semantic nuances, and many languages have information-structural differences between the two alternants (as noted at the end of §11.3).

An example of a role-manipulating alternation type is the labile alternation, where there is an additional semantic role in one of the alternants.

(75) role-manipulating alternation: **labile alternation** (§10.3)

$\langle V, A_X, P_Y \rangle$ 'X makes Y change'
$\approx \langle V, S_Y \rangle$ 'Y changes'

In polyvalency alternations like the labile alternation, there is no directionality, so we cannot say whether the additional argument position X has been removed from the intransitive alternant or installed in the transitive alternant.

But in voice alternations, we usually treat the alternant with the coded verb as derived, and we say that a voice with an extra role position is a role-installing voice, e.g. the causative voice.

(76) role-installing alternation: **causative alternation** (§11.3)

$\langle V, S_X \rangle$ 'X acts'
$\approx \langle V\text{-CAUS}, A_Z, P_X \rangle$ 'Z makes X act'

A voice in which a role position is missing that is present in the uncoded alternant is the anticausative voice, and example of a role-removing voice.

(77) role-removing alternation: **anticausative alternation** (§11.3)

$\langle V, A_X, P_Y \rangle$ 'X causes Y to change'
$\approx \langle V\text{-ANTC}, S_Y \rangle$ 'Y changes'

The distinction between role-relinking and role-manipulating alternation types has been made frequently in the literature and is uncontroversial, but authors have used a variety of terms, some of which are listed in (78).

(78)

	role-relinking	**role-manipulating**
Spencer & Sadler (1998)	morphosyntactic	morpholexical
Bohnemeyer (2007: 155)	voice (operations)	A-structure-changing
Zúñiga & Kittilä (2019: 10)	arg.-structure preserving	arg.-structure modifying
Lehmann (2015a: §3.1)	diathetic operation	valency operation

13. Types of argument omission

"Argument omission" is a vague characterization of a situation where an argument that might be expected to be present is not present. This covers at least four rather different subtypes that must be distinguished, listed in (79). Only the last two are clearly relevant for valency and voice issues.[30]

(79) a. definite zero anaphora (or latency)
     b. argument withholding
     c. argument suppression
     d. role removal

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[30] In the literature on valency, these distinctions have long been discussed (e.g. Koch 1981: 89-95; Matthews 1981: 123-126), because obligatoriness was often thought to be an important criterion for argument (vs. adjunct) status. This may be so in some European languages, but as the earlier literature notes, there are a lot of different reasons for "optionality" or omissibility of arguments.

The simplest case is ZERO ANAPHORA, the omission of a definite argument whose reference can be inferred from the context. This is common in many languages, for all kinds of arguments. For example, zero expression of anaphoric objects is common in colloquial Brazilian Portuguese (but not in other Romance or Germanic languages, which generally require object pronouns):

(80) *Coitado do João. O   chefe **mandou** Ø   embora.*
      poor   of João the boss   sent   Ø   away
      'Poor João. The boss fired him.' (Farrell 1990: 320)

In Baoulé (a Kwa language of Côte d'Ivoire), object omission is obligatorily interpreted as anaphoric (81b), and cannot have an unspecified-indefinite interpretation (for which a generic object noun is required, as in 81c).

(81) Baoulé (Creissels 2006: 3)
      a. *Kòfí   **dì-lì**   juê.*
         Kofi   eat-PFV   fish
         'Kofi ate fish.'

      b. *Kòfí   **dì-lí**.*
         Kofi   eat-PFV
         'Kofi ate it.' (NOT: 'Kofi ate (something).')

      c. *Kòfí   **dì-lì**   àliĕ.*
         Kofi   eat-PFV   food
         'Kofi ate (food).'

Zero anaphora is not widespread in English, but it does occur with some verbs (e.g. *What did they say about the offer? They accepted Ø*; Fillmore 1986: 101). A felicitous term for zero anaphora is LATENCY (Matthews 1981: 38, 125; Croft 2001: 273): we can say that an argument position is LATENT when there is no overt expression (though overt expression would be possible) but it is interpreted as definite anaphoric.

Like zero anaphora, languages frequently allow ARGUMENT WITHHOLDING, i.e. the omission of an argument that is intepreted as unspecified and indefinite, as in *They ate*, or *She is writing*. Here it is clear that the argument referent exists, but it need not be recoverable from the context. Object withholding in Italian was recently studied by Cennamo (2017), who provides example (82). The understood object need not have been mentioned earlier.

(82) *Marco **spazzò** e   **lavò**   a   fondo prima di   partire.*
      Marco swept   and washed   at base   before to   leave
      'Marco swept and cleaned thoroughly before leaving.' (Cennamo 2017: 264)

Some languages also allow withholding of subjects, e.g. Lezgian (a Dagestanian language), where a meaning such as 'the articles have been published' is simply rendered as 'Ø published the articles' (Haspelmath 1993b: 287-289), with no subject stated (see also Creissels 2014 on the related language Akhvakh). Argument withholding has not been studied in many languages, so it is not well understood. Object withholding in English seems to be subject to a variety of conditions (e.g. Goldberg 2001; Cornish 2007; Glass 2014).

Zero anaphora and argument withholding have often been treated under the heading of "null subjects/objects", or "null instantiation". Some authors such as Croft (2001: §7.7.3) and Lambrecht & Lemoine (2005) distinguish between *definite null instantiation* and *indefinite null instantiation*, for zero anaphora and argument withholding, respectively (following Fillmore 1986).[31] However, it is best to keep these phenomena terminologically distinct and to avoid "null/zero" terminology for argument withholding, because it is semantically rather different from zero anaphora. And in the current context of valency alternations, only argument withholding could possibly be regarded as a kind of intransitivizing valency alternation (clauses with zero anaphora like 80 and 81 are never regarded as intransitive).

The reason why sentences like *They ate* and the Italian sentence in (82) should not be regarded as showing a valency alternation (analogous to the labile alternation in §10.3) is that the conditions on object withholding do not seem to be clearly verb-specific in most languages. Creissels (2014: 923) notes that for English, we would not want to set up two different constructions for *They ate* and *They ate soup*, but rather a single construction [SUBJECT VERB (OBJECT)]. It is true that in some languages, the omission of objects with an unspecified interpretation is possible only with specific verbs and under specific grammatical conditions, as in Mandinka, a Mande language (Creissels 2014: 914; 2015: §2.5). When the object of 'cross' is not present, as in (83b), the verb shows intransitive tense marking (completive suffix *-ta*) rather than the transitive marker *ye*.

(83) Mandinka (Creissels 2015: 226)
   a. *Mǒo-lu*   *ye*   *báa*   **teyi**.
       person.DEF-PL   CMPL.TR   river.DEF   cross
       'The people crossed the river.'

   b. *Mǒo-lu*   **teyi-ta.**
       person.DEF-PL   cross-CMPL.INTR
       'The people crossed.'

Here it does make sense to posit a polyvalency alternation ⟨V, X[SUBJ], Y[OBJ]⟩ ≈ ⟨V, X[SUBJ]⟩ 'X acts (on Y)', but it is unclear whether this is a common cross-linguistic alternation type. We need more systematic cross-linguistic research on argument withholding (making sure to distinguish it from zero anaphora), but for the time being, we should treat this phenomenon separately from the phenomenon of polyvalency unless we have specific reasons (as we do in Mandinka).

ARGUMENT SUPPRESSION is well-known from agent suppression in passive constructions in some languages, as was noted above. A suppressed argument is interpreted as indefinite-unspecified, as in argument withholding, but it cannot be overt. We saw an agent-suppressing passive in §11.1 above, and a patient-suppressing antipassive in §11.2 above. In (84), we see another patient-suppressing antipassive alternation.

(84) Kolyma Yukaghir (Maslova 2003: 255)
   a. *tet-ek*   *aŋčī-ŋile*
       you-FOC   search-3PL.OBJ.FOC
       'They are looking for you.'

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[31] Instead of *null (argument)*, many authors also say *zero, implicit, non-overt, covert, understood, deleted (argument)*. It seems that all these terms have been used both for zero anaphora and for argument withholding, so they do not make the crucial distinction. (The term *ellipsed argument* is perhaps restricted to latent/zero-anaphoric arguments.)

b. *aŋsī-d'-ā-je*
search-ANTP-INGR-1SG.INTR
'I began to search.'

Finally, ROLE REMOVAL is a situation in which a role that is present in one valency construction is not present in another alternant. The best-known case of this is in anticausative alternations like (64), from the Bantu language Luragooli, where the agent role is removed.

(85) Luragooli (Gluckman & Bowler 2016: 272)
a. *Sira* **a-hani** *muriaŋgo.*
Sira 3SG.G1-close door(G3).
'Sira closed the door.'

b. *Muriaŋgo* **gu-han-iki.**
door(G3) 3SG.G3-close-ANTC
'The door closed.'

It seems that role removal applies only to agent removal (see also the discussion of alleged "patient removal" in §11.2 above).

While it is not controversial that these four situations are distinct in principle, distinguishing in practice between argument withholding, argument suppression, and role removal is not always straightforward (as illustrated by the discussion in Creissels 2014). Argument omission of various kinds is a topic that requires more cross-linguistic research.

14. Productivity of valency alternations

Throughout this paper, I have not distinguished between productive and unproductive (macro-)valency constructions and valency alternations, but this is of course an important contrast.

In most languages, the monovalent intransitive and the bivalent transitive valency constructions are productive, in the sense that new verbs can arise that occur in these constructions. But many languages have unproductive valency constructions as well. For example, the English bivalent valency construction ⟨V, S$_X$, obl[*of*]$_Y$⟩ occurs with a few verbs such as *speak (of)*, *dream (of)*, but it is not really productive. Such unproductive classes are the most important domain of valency dictionaries, because they are the most likely to be semantically idiosyncratic and thus to require lexicographic treatment. Barðdal (2008) studied a range of valency constructions in Icelandic and discussed their productivity in some detail. In the "argument structure" tradition since Goldberg (1995), valency constructions have typically been assumed to be productive, though unexpected limitations of productivity have also been discussed (e.g. the fact that English explain does not occur in the Double Object construction: **explain me this*; see Goldberg 2019).

Like valency constructions, valency alternations (= pairs of sister valency constructions) may be unproductive or productive. Japanese has an unproductive causative construction in *-asu* (e.g. *kawaku* 'become dry', *kawa-asu* 'make dry', Shibatani 2016: 473), and German Labile alternation (*trocknen* 'become dry/make dry'; see (21) and (24) above) is basically unproductive. By contrast, the Japanese causative suffix *-(s)ase-* is highly productive, and so is the English Labile alternation. It seems that all of the alternation types that we have seen, whether polyvalency alternations or voice alternations, may be productive or unproductive. Whether or not an alternation is

productive or not seems to be unpredictable and must be learned for each alternation separately.

It is sometimes thought that role-preserving alternations tend to be productive and subject to few restrictions, while role-manipulating alternations are more limited in their productivity. The stereotypical role-preserving alternation is the passive in European languages, and this is usually very productive. By contrast, causative alternations are often restricted and unproductive. This leads some authors to restrict the label *voice* to productive role-preserving alternations, e.g. Lehmann (2015a: 1564). In view of the disfferences in productivity and regularity, it is sometimes said that voice alternations are *inflectional*, while less productive alternations such as causatives are *derivational* formations. However, this does not seem to be a helpful dichotomy, because the inflectional-derivational distinction cannot be made independently of criteria such as productivity and regularity. In this paper, as noted earlier, I follow Zúñiga & Kittilä (2019) in including all verb-coded alternations under *voice*, regardless of their productivity or regularity.

The correlation between the role-preserving nature of an alternation and productivity does not seem to hold in general: Many languages (especially outside Europe) have very productive causatives, and passives are sometimes restricted and unproductive.

Unproductive alternations have also been said to be "lexical", and Goldberg's (1995; 2013) arguments for "argument structure constructions" over "lexical rules" only apply to productive constructions. The English Double Object construction is well-known to be highly productive, and so is the Caused-Motion construction (as in the famous example *She sneezed the napkin off the table*; see (26b) above). However, the productivity of these construction types is specific to English: Languages have dative alternations with limited productivity,[32] and not many languages have caused-motion constructions that can be used with a 'sneeze' verb. (In most languages, one has to say something like 'By sneezing, she pushed the napkin off the table'.) Thus, some of the most widely repeated arguments for "argument structure constructions" as opposed to "lexical rules" seem to be dependent on the high degree of productivity of some of these constructions in English. But as we saw in §7 above, this contrast may not be as important as has sometimes been thought.

15. Concluding remarks

This paper has surveyed a range of valency alternation types, both of the uncoded type (polyvalency alternations, §10) and of the verb-coded type (voice alternations, where one of the alternants is a voice construction, §11). It begins with a general discussion of language-particular and verb-specific valencies and linking (§2-4), moves to (macro-) valency constructions and their alternations at the language-particular level (§5-8), and then on to cross-linguistic valency alternation types (§9).

None of this is new, so the emphasis in this paper is on using fully consistent terminology and notation for valency constructions and alternation types, both at the language-particular and at the general level. While surveys of voice and valency constructions have been created by typologists since Xolodovič (ed.) 1969 (on causative constructions) and Xolodovič (ed.) 1974 (on passive constructions), and typological work on this topic has become prominent since Perlmutter & Postal (1977) and Comrie (1985), there have been few comprehensive overviews. This paper stands on the shoulders of all this earlier work, and complements the more recent overviews by Dixon & Aikhenvald (2000), Kulikov (2011), Lehmann (2015a), and Zúñiga & Kittilä (2019). The terminology

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[32] As we note in Haspelmath & Malchukov (2022: §11.1), there are many languages where very few verbs occur in a double object construction. Dative constructions are rarely restricted in this way.

chosen here differs from the latter, in particular, by using the syntactic role types A, P, and S as cross-linguistic cover terms for argument classes (not for generalized semantic roles; see Haspelmath 2011). Thus, my characterization of anticausative alternations in (86) is quite different from Zúñiga & Kittilä's, given in (87).

(86)   anticausative alternation in this paper (§11.3 above)

   $\langle V, A_X, P_Y \rangle$ 'X causes Y to change'
   $\approx \langle V\text{-}ANTC, S_Y \rangle$ 'Y changes'

(87)   anticausative alternation in Zúñiga & Kittilä (2019: 42)

   $\langle V, SBJ_A, OBJ_P \rangle$
   $\approx \langle V\text{-}ANTC, SBJ_{SP} \rangle$

The description in (87) uses the labels "A, P and S_P" as cross-lingustic semantic roles ("generalized semantic roles"), whereas I use A, P and S as cross-linguistic syntactic roles, defined by the coding properties of the arguments (as described in §9). This has the advantage that cross-linguistic comparison can be based on the same criteria for all languages and does not involve the risk of cherry-picking particular criteria for "subject" or "object" status.

Until recently, the term "voice" was mostly restricted to passive constructions and other constructions that have a salient discourse-pragmatic function, but in recent work, it has been extended to all constructions where a valency alternation is signaled by a marker in the verb (Zúñiga & Kittilä 2019; Bahrt 2021). I have followed this relatively new terminology, because there are clearly many similarities between alternation types like labile and oblipatient, causative and anticausative, and passive and antipassive alternations. In fact, all of them are best defined in terms of the syntactic argument properties of the valencies, so they are all valency alternations. For those alternations that do not include verb coding (and thus do not imply clear directionality), I coined the new term *polyvalency alternation*.

The traditional "voice" notion has been associated with (highly regular) inflectional marking, while "valency-changing operations" have been associated with less regular (or "lexical") derivational marking. I do not make such a distinction here, but there are evident differences in productivity (§14), which have not been studied systematically in cross-linguistic perspective (this is difficult, because one needs to know a language very thoroughly before one can make statements about productivity). Moreover, there is a clear distinction between role-relinking alternations (like passive and dative alternations) and role-manipulating alternations like labile and causative alternations (§12).

Virtually all the distinctions that I make in this paper have been present in the literature, and some of them in a salient way, so I make no claim to novelty here. What is new is a uniform system of terminology and notation for all kinds of valency and valency alternation that takes the earlier findings into account and integrates them into a coherent conceptual framework for general grammar.

Some more discussion of the earlier terminology is given in Appendix A, and Appendix B summarizes the definitions of the key terms.

Appendix A. Some discussion of the earlier terminology

This appendix discusses a range of technical terms that have frequently been used for the phenomena and general concepts that we saw in §2-12. The terminological usage in the literature is fairly heterogeneous, but there is much more agreement concerning the concept, so it is worth paying attention to the terminology in order to understand earlier work in a variety of traditions.

A.1. Process terminology: Transformations, operations, changes

As noted in §7, linguists have often talked about valency alternations in terms of metaphorical processes that "transform" a basic construction into a derived construction, or in terms of "operations" on a basic construction (or "derivations", or "manipulations", or "adjustments").

The transformational metaphor for passive constructions became famous with Chomsky (1957: 42-44), though since the 1980s, such abstract processes more often been caled "derivations" or "operations". And since the 1980s, the term "valency change" has been used (first by typologists) for alternations that do not fall under the old term "voice" (Comrie 1985).

As part of the widely used process terminology, the terms "promotion" and "demotion" have become popular since the 1970s, especially in the tradition of Relational Grammar (Perlmutter 1980; Blake 1990; but in this framework, "advancement" became more common than "promotion" in the 1980s).

For polyvalency alternations like the English Dative alternation and the English Locative alternation, the non-directional term *alternation* (rather than the earlier process term *Dative shift*) became more common after Oehrle (1976) argued against a transformational analysis. Since Levin (1993), the term *alternation* has become fully established for polyvalency alternations and causative alternations. When I say that "voice alternations" are a subtype of "valency alternations", this is somewhat novel, but the strong affinities between polyvalency alternations and verb-coded alternations (between labile, causative, and anticausative alternations, as well as between dative and applicative alternstions) have long been recognized.

It may be best to avoid process terminology to the extent that this is possible, but it must be admitted that dynamic metaphors are often very practical. Especially in asymmetrical voice alternations, the uncoded alternant can be treated as "basic", and the verb-coded alternant as "derived". Then we can talk about "promotion" and "demotion" of argument types, as well as about "the basic A" or "the new P". But it is important to keep in mind that the "processes" are merely metaphorical and that the asymmetry of the sister constructions consists only in the asymmetrical coding.

A.2. Voice

Following Zúñiga & Kittilä (2019), I use the term *voice (alternation)* for verb-coded valency alternations, and *voice construction* for the coded member of such a pair of sister valency constructions. This is in line with an extremely widespread earlier use of the term *passive voice construction*, as well as a more limited tradition of talking about *reflexive* and *causative voice constructions* (the latter especially in the Russian tradition of Altaic studies). As noted above, the use of *voice construction* for applicative and anticausative constructions is less traditional, but it is fully consistent in a conceptual system where voice alternations consist of two sister valency constructions.

In the past, it has sometimes been said that voice constructions are inflectionally marked valency-changing constructions (e.g. Haspelmath & Müller-Bardey 2004), but this is a remnant of the older tradition of grammatical description which was heavily influenced by Latin and Greek grammar. Before systematic typological and syntactic research became widespread, the term *voice* was limited to the active and passive (and middle) voice of Latin (and Ancient Greek), as discussed by Lyons (1968: §8.3).

It should be noted that in this earlier use of *voice*, the context was not syntactic constructions which can be in a sister relationship, but verbal inflectional paradigms. *Voice* was seen as an inflectional "category" or "feature", and active and passive were "subcategories" or "values" of this category/feature. Just as we say that "a noun is in the dative case", one would say that "a verb is in the passive voice", for example. The current use of the term *voice (construction)* is rather different in that it starts out from the differences in the valency constructions, not from the verbal marking.[33]

A.3. Valency

The term *valency* is generally thought to go back Tesnière (1959), though it was used by others around the middle of the 20th century.[34] The term was first taken up in the late 1960s by some linguists in Germany (Heger 1966; Heringer 1967; Helbig & Schenkel 1969), where it became a popular topic in the 1970s. But around the same time, Fillmore (1968) proposed to incorporate "case frames" into transformational grammar, and this terminology became more influential in English-speaking linguistics (though a few British linguists such as Matthews (1981) and Allerton (1982) adopted the term from Germany, or maybe directly from Tesnière). The term *valency* also spread in central and eastern Europe (cf. Panevová 1994), and it became more widespread in English-speaking linguistics only on the 21st century, especially in typology (Dixon & Aikhenvald 2000; Hartmann et al. 2013; Malchukov & Comrie 2015). Since Helbig & Schenkel (1969), quite a few valency dictionaries have been published (e.g. Busse & Dubost 1977 for French, Mel'čuk & Zholkovsky 1984 for Russian; see Busse 2003), and Herbst et al. (2004) published a valency dictionary for English (see also Fillmore's 2008 review of this dictionary). As the term *valency* is now quite entrenched also in computational linguistics, it does seem to be here to stay, even though in English-speaking linguistics, the terms *argument structure* and *subcategorization* continue to be very popular, too.

Valency is often most simply defined as "the number of arguments that a verb takes", as if it referred to nothing other than the distinction between monovalent, bivalent and trivalent verbs.[35] But this aspect is also called *quantitative valency*, and it is widely recognized that the argument coding properties are part of a verb's valency, too (so that nominative-accusative and nominative-dative represent different valencies).

A.4. Arguments and adjuncts, actants and circumstants

The terms *argument* and *adjunct* have become largely standard for what Tesnière called *actants* and *circumstants*, i.e. elements that fill valency slots vs. elements that modify the

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[33] It should also be noted that the Latin Passive verb forms are not clearly instances of passive-marked verbs in the sense of (41) above, because there is no single passive marker (e.g. *lauda-t* 'she praises' vs. *lauda-tur* 'she is praised', *lauda-tis* 'you praise', *lauda-mini* 'you are praised').

[34] Przepiórkowski (2018) notes that the term was used, apparently independently, by Solomon D. Kacnel'son in 1948, by A.W. de Groot in 1949, by Lucien Tesnière in 1953, and by Charles Hockett in 1958.

[35] A few authors even distinguish between valency and argument structure in this way: *valency* is taken to refer the number of arguments, and *argument structure* to their coding properties (e.g. Song 2016: 371-372).

vrb or the clause in a way independent of the specific verb. The term *actant* used to have some currency in French and Russian linguistics until more recently (e.g. Lazard 1998; Mel'čuk 2004b), but it has been largely replaced by *argument*. The term *argument* was borrowed from logic and has been current since Dik (1978) and Chomsky (1981), and as it can easily be taken to mean a semantic event participant, it is not as good as *actant*, but we are stuck with it. The earlier equivalent *complement* (corresponding to German *Ergänzung*) seems to be less and less common (except in the context of complement clauses, which are rarely called argument clauses).[36]

That it was not always easy to distinguish between arguments and adjuncts became clear soon (see Vater 1978; Somers 1984; and the copious earlier literature that they cite). Nevertheless, there are many very clear cases of arguments and many very clear cases of adjuncts (especially adverbials conveying the temporal and spatial setting, or conditional, causal and concessive adverbials), and it has never been questioned that the distinction is important in many contexts.

A.5. Syntactic arguments and event participants

Especially for arguments (but less so for adjuncts), an important distinction is between the syntactic level (*syntactic arguments*) and the semantic level (*event participants*). A valency specifies the mapping between these two types of entities, so we need clear terms for them. Perhaps the clearest term pair would be "complement vs. participant", because *complement* has no semantic associations, and *participant* is clearly semantic. But as we just saw, the term *argument* (which originally derives from logic) is now well-established for the relevant elements at syntactic level.

Some authors distinguish between "semantic arguments" and "syntactic arguments", but this is not good terminology, because the term "argument" on its own would be vague.

The term *valency* itself has been understood not only in a syntactic sense, but also in a semantic sense, both for a valency frame and for an event structure to which it is linked (this goes back all the way to Helbig & Schenkel 1969). But again, just like "semantic vs. syntactic argument", this is not good terminology, because the term "valency" by itself would become vague. Thus, it is better to distinguish between a verb's (semantic) ROLE FRAME (listing its event participants with their semantic roles) and its syntactic VALENCY (listing its argument slots with their grammatical properties).

A.6. Subcategorization frame

A term for valency that goes back to Chomsky (1965) is *subcategorization*. In generative grammar, a valency frame has often been called a "subcategorization frame" (e.g. Fisher et al. 1991), and on the analogy of valency dictionaries, computational linguists have also talked about "subcategorization dictionaries" (e.g. Manning 1993). The original sense of subcategorization was that there are different subcategories of verbs with respect to their syntactic combinations, but the term became specialized in generative grammar. Many linguists started using the corresponding verb intransitively, e.g. "the English verb *give* subcategorizes for two object arguments" (= belongs to the subcategory of verbs with this valency frame). However, since the 1980s, the term has become less common in mainstream generative syntax, and the alternative "c-selection" has sometimes been used instead (e.g. Grimshaw 1979; Odijk 1997; but these authors contrast it with "s-selection, which was mentioned in §4).

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[36] In generative grammar, *complement* is used for a configurational element in the context of X-bar theory (opposed to "specifier"). In this context, the term pair *complement/adjunct* is still sometimes used instead of the more common *argument/adjunct* (e.g. Dowty 2003).

A.7. Argument structure (and related terms)

In the early 1980s, the idea that a verb is associated with a set of semantic roles whose mapping to syntactic positions needs to be specified and can be manipulated by grammatical operations became to spread in the generative subcommunity (apparently since Williams 1981). Grammatical rules were often formulated in terms of "operations on argument structure", especially in LFG and related frameworks (e.g. Sadler & Spencer 1998), which is just a different term for valency-changing operations (Comrie 1985). The term *argument structure* was widely adopted by linguists of different communities (e.g. Comrie 1993; Goldberg 1995; Ramchand 2014), even though it always means more or the same as *valency* (presumably because *valency* was long primarily associated with the European tradition).

Around the same time, the argument positions that are associated with semantic roles came to be called "theta roles" (or "θ-roles") in generative grammar (Chomsky 1981), and the array of argument positions of a verb were sometimes called "theta grid". Other less common terms for the set of argument positions or semantic roles are *(poly)adicity* (Bresnan 1980) and *arity* (Reinhart & Siloni 2005) (in this tradition, two- and three-place verbs might be called *dyadic/binary* and *triadic/ternary*).

A.8. Diathesis

A term that is associated with the typology tradition is *diathesis,* which has sometimes been used in the sense of a valency construction or a cross-linguistic valency construction type, following Mel'čuk & Xolodovič (1970), Xolodovič (ed.) (1974), and other work in the Leningrad Typology tradition). It originally derives from the grammar of classical languages and was rarely used by English-speaking linguists until recently. In Zúñiga & Kittilä's (2019: 4) conception, the term *diathesis* "refers to any specific mapping of semantic roles onto grammatical roles". Other authors that have used this term recently are Kulikov (2011) and Wechsler (2015). In the Leningrad tradition, a voice is regarded as a grammatical expression of a diathesis, so *diathesis* is crucial for understanding what is meant by *voice.*

But is there any need for a term that is different from the older term *valency*? It appears that authors working in the Leningrad tradition have not tried very seriously to relate *diathesis* to *valency* (or to *argument structure* for that matter). It is true that the idea of mapping of event participants to argument positions has not been very prominent in characterizations of valency, but this information must of course be part of an individual verb's valency, and also of macro-valency constructions.

If *diathesis* is used instead of *valency construction*, then one can use terms like *diathesis modification* or *diathetical operation* for the more common *valency-changing operation* (Kulikov 2011: §3.2; Zúñiga & Kittilä 2019: 4).[37]

Finally, I should note that in the German tradition, *Diathese* is simply a counterpart of English *voice* (e.g. Geisler & Jacob 1998; Vater 2003), alongside *Genus verbi*, a usage that has of course added to the terminological confusion (see also Lyons (1968: §8.3) for some illuminating remarks on the earlier history of these terms).

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[37] However, it does not seem to be possible to talk about "active diathesis" and "passive diathesis", because the definition of *passive* crucially involves verbal marking, and diathesis is only concerned with participants and argument positions.

Appendix B: Definitions of technical terms

A-argument: If a two-argument verb has an argument that is coded like the agent of a physical-effect verb ('kill', 'break') and one that is coded like the patient of such a verb, then the first is its ***A-argument*** and the second is its °*P-argument*.

adverbial argument: an argument that need not be of a uniform syntactic type, but is defined primarily by its adverbial meaning (§4)

alternant (construction): one of the two constructions (or construction types) of an alternation (type)

anticausative voice alternation: In an ***anticausative voice alternation***, the uncoded alternant is transitive, and in the coded alternant, the P becomes an S and the A role is removed.

antipassive voice alternation: In an ***antipassive voice alternation***, the uncoded alternant is transitive (with A and P), and in the coded alternant, the basic P is downgraded and the basic A is promoted to S.

argument coding: argument flagging (see °*flag*), argument indexing, or rigid order of arguments (§9)

causative voice alternation: in a ***causative voice alternation***, the coded alternant includes an additional A argument (the coder), and one of the basic arguments (S, A, or P) is treated as P.

core: a ***core argument*** is an argument that is coded in the same way as the °A-, °P- or °S-argument of a transitive or an intransitive clause

demotion: ***demotion*** of an argument is a process in which a °*core argument* becomes an °*oblique argument*

desubjective voice alternation: In a ***desubjective voice alternation***, the uncoded alternant is transitive (with A and P), and in the coded alternant, the basic A is °*downgraded* and the basic P remains a P.

downgrading: a cover term for °*demotion* or °*suppression*

flag: a case affix or an adposition

intransitive verb: a verb that is not a °*transitive verb*

labile alternation: a polyvalency alternation in which one alternant is transitive (with A and P) and the other alternant only includes an S which corresponds to the transitive P

labile verb: a verb that can occur in a °*labile alternation*

macro-valency construction: a construction that subsumes several individual valencies with the same argument properties (§5)

oblique: an ***oblique nominal*** is a nominal that has a °*flag* which is distinct from °S/°A/°P flags (i.e. not nominative/absolutive, accusative, ergative)

P-argument: If a two-argument verb has an argument that is coded like the agent of a physical-effect verb ('kill', 'break') and one that is coded like the patient of such a verb, then the first is its °*A-argument* and the second is its ***P-argument***.

passive voice alternation: In a ***passive voice alternation***, the uncoded alternant is transitive (with A and P), and in the coded alternant, the basic A is downgraded and the basic P is promoted to S.

polyvalency: the situation when a verb has multiple °*valencies* (§8)

polyvalency alternation: a ***polyvalency alternation*** is a pair of sister constructions which have different valencies and in which there is no verb coding (§8); a verb that can participate in a polyvalency alternation is called a °*polyvalent verb*

polyvalent verb: a verb that is associated with two or more different valencies

reflexive voice alternation: In a ***reflexive voice alternation***, the uncoded alternant is transitive (with A and P), and in the coded alternant, there is just a single S argument which bears both the role of the basic A and of the basic P.

role removal: (the situation when a role that is present in one alternant is absent in another alternant; to be distinguished from suppression)

role-relinking alternation: an alternation in which the two sister constructions have the same event participants but are linked to different kinds of argument positions (§12)

role-manipulating alternation: an alternation in which the two sister constructions do not have the same event partcipants, i.e. where an alternant has an additional participant that is lacking in the other alternant (§12)

role-installing voice construction: a voice construction which has an additional participant that is lacking in the basic alternant (§12)

role-removing voice construction: a voice construction which lacks a participant that is present in the basic alternant (§12)

S-argument: If an intransitive verb has an argument that is coded like the single argument of a change-of-state verb ('die', 'fall'), then this is its ***S-argument***.

symmetrical voice alternation: a °*voice alternation* in which the verb is coded in both of the alternants

transitive verb: a ***transitive verb*** is a verb that occurs with an °A-argument and a °P-argument

suppression: an argument position is ***suppressed*** when its role cannot be expressed overtly (to be distinguished from °*role removal*)

valency: (1) the *valency* of an individual verb is the set of °argument positions that the verb takes together with their grammatical properties (see §2); (2) *valency* is often informally used for the domain of (macro-)valency constructions

valency alternation: a pair of sister valency constructions in a given language (see °*sister construction*)

valency alternation type: a cross-linguistic type of °*valency alternation*

valency construction: usually short for °*macro-valency construction*

valency construction type: a cross-linguistic type of °valency construction (a comparative concept)

valency frame (or **valency pattern**): a *valency frame* is a schema which contains information about the argument positions of a verb and their argument properties

voice: (1) *voice* informally refers to the domain of °voice alternations and constructions; (2) *a voice* is an informal abbreviation of *a °voice construction*

voice alternation: a °*valency alternation* (= a pair of sister valency constructions) in which the verb is coded in (at least) one of the alternants

voice construction: a verb-coded alternant construction in a °*voice alternation*

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