7. Specific Verb Classes and Alternations

7.1 Unaccusative and Unergative Verbs

7.1.1 Introduction

We start with the discussion of an important division among the intransitive verbs. It has been observed that not all intransitives behave in the same way.

First, for some intransitives there is a transitive use, but not for others:

(1)   a. The vase broke. / John broke the vase.
      b. The vase glowed (in the sun) / *The sun glowed the vase.

Second, in languages that use different auxiliaries, auxiliary selection is often different for different intransitive verb, like in Italian:

(2)   a. Maria ha camminato.   b. Maria è arrivata.
      Maria has walked   Maria is arrived
      'Maria walked.'   'Maria arrived.'

Third, there are languages in which the realization of the only argument of intransitive verbs may be different. For example, in Guaraní some intransitives encode their argument like the subject of transitive verbs, and some encode it like the object of transitives (see Mithun (1991) for an overview over such systems, so-called **active case marking** systems).

(3)   a. a-xá.   'I go.'   b. sˇé-rasí.   'I am sick.'
      a-puʔá.   'I got up.'   sˇe-ropehíí.   'I am sleepy.'
      c. a-gwerú aina. 'I am bringing them now.'
      d. sˇe-rerahá.   'They will carry me off.'

This distinction between two syntactic classes of intransitives is semantically interesting because it appears to reflect meaning differences among the class of intransitives, and these meaning differences are relatively similar across languages, though difficult to characterize.

We sometimes find that one and the same intransitive verb can belong to one class or the other, often with a slight but telling meaning shift. For example, in German *schwimmen* 'swim' can select for either auxiliary:

(4)   a. Hans ist geschwommen.   'Hans is swum.'
      b. Hans hat geschwommen.   'Hans has swum.'

Where in (b), the marked version, the activity aspect of the swimming is highlighted.

Beobachtungen zu *haben / sein* in der Perfektbildung (Duden-Grammatik):

Transitive und reflexive Verben: *haben.*
Vgl. *Sie hat den Wagen gefahren. / Er hat sich geschämt.*

Intransitive Verben, die ein Geschehen oder einen Verlauf ausdrücken: *haben.*
Vgl. *Die Rose hat nur kurz geblüht. Hans hat getanzt.*

Intransitive Verben, die eine Zustands- oder Ortsveränderung ausdrücken: *sein.*
Vgl. *Die Rose ist verblüht. Hans ist durch den Saal getanzt.*

Unterschiedliche Zuordnung in manchen Fällen:
Er ist / hat rasch gealtert. Der Wein ist/hat gegoren.

Dialektale Unterschiede:
Ich habe gelegen / gestanden / gessessen (Norden) vs. *Ich bin gelegen / gestanden / gesses-sen* (Süden).

Ich bin angefangen (Norden) vs. *Ich habe angefangen* (Süden).

The two verb classes are generally known as **unaccusatives** and **unergatives**, a terminology inspired by the theoretical analysis of Perlmutter (1978). For example, verbs like *break, arrive, be sick, be sleepy* are called "unaccusatives", and verbs like *glow*, *walk*, *get up* are called "unergatives". The term "unaccusatives" is motivated by the idea that the argument of these verbs actually is an object, that is, should have accusative case, but that they cannot assign that case. The term "unergative" is motivated by the idea that the argument is an agent, and would appear in the ergative case in ergative languages, but that the verb cannot assign ergative case.

Another terminology, going back to Burzio (1981), is "ergative" for what we have called "unaccusatives". See Pullum (1988) for a succinct treatment of the history of the reseach on this topic and its terminology, and Levin & Rappaport Hovav (1995) for a comprehensive treatment of the distinction, by and large restricted to English.

7.1.2 Properties of Unaccusatives

We will discuss some of the properties of unaccusatives, as outlined in Levin & Rappaport Hovav (1995). It will soon become obvious that there are a number of distinct subtypes of unaccusative verbs.

One phenomenon that characterizes an important class of unaccusatives is that they undergo **causative alternation**, like *break*, but also 'roll' verbs like *bounce, drip, move*, 'bend' verbs like *fold, wrinkle*, and many other verbs like *change*, *drain*, *light*, *shrink*, verbs on *–en* like *broaden, sharpen* (see Levin (1993) p. 27ff.)

(5)   a. The player dropped the ball.
      b. The ball dropped.

The transitive variant can be paraphrased as causative, 'the player caused the ball to drop' (even though something appears to be missing in this paraphrase, which suggests a more indirect causation. This is presumably because of an additional implicature that arises due to a fact that a more complex expression is used, an implicature that is well known from the work of Grice).

But not all verbs that have been characterized as unaccusative participate in this alternation:

(6)   a. The king arrived.
      b. *The master of ceremonies arrived the king.

The causative alternation for verbs like *break, drop* etc. suggests that the subject of their use as intransitive verbs is related to the object in their use as transitive verbs.

Another property that distinguishes unaccusatives from unergatives is that the latter require a so-called "fake reflexive" object with **resultatives**. These are secondary predications that express a result that is achieved due to the event expressed by the main predicate. For transi-

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tive verbs they always apply to the **direct object** of the main predicate. (Resultatives have to be distinguished from depictives, which can apply to other arguments as well.)

(7) The soldier rode the horse tired.
   i. Object-Resultative: The horse became tired due to the riding.
   ii. Object-Depictive: The horse was tired during the riding.
   iii. Subject-Depictive: The soldier was tired during the riding.
   iv. *Subject-Resultative: The soldier became tired due to the riding.

(8) a. The man pounded the piece of iron flat.
   b. *The man pounded on the piece of iron flat.

(9) a. Mary loaded the wagon full with hay.
   b. *Mary loaded the hay into the wagon full.

Resultatives can apply to the subjects of passives:

(10) a. The piece of iron was pounded flat (by the man).
   b. John was shot dead.

This perhaps doesn't come as a surprise, as the subject of passives is related to the object position of the verb (it's a deep-structure object). Hence, we can assume that resultatives are generally restricted to NPs that are objects at some level of syntactic derivation (the DOR or **direct object restriction**) .

But observe that we can have resultatives with certain intransitives as well:

(11) a. The river froze solid.
   b. The door swung open.
   c. The vase broke into pieces.

If we want to maintain the DOR we will have to claim that the subject arguments of these verbs are objects at some level of derivation (cf. (cf. Simpson (1983)).

What about unergative verbs? They do occur with resultatives as well, but they require some additional object NP, like a so-called fake reflexive, or a body part argument:

(12) a. They shouted themselves hoarse.
   b. (…) my mistress grumbled herself calm. (E. Brontë).
   c. (…) and the other officers laugh themselves helpless. (P. Lively).

(13) He cried his eyes out.

An possible alternative to the DOR is to say that resultative constructions apply to the **affected theme** of an event (the iron in (8) and (10), the wagon in (9), the river in (11)). Counterargument: Then one wouldn't expect the fake reflexive construction in (12) to be necessary. Wechsler (1998) suggests an Affected Theme Constraint instead of the DOR, and explains the difference between (11) and (14) by pointing out that in (15) we don't have "canonical" results. Cases like (16) represent a derived use of verbs that we also find in *They shouted the speaker off the stage*.

There are other properties that the subject of unaccusatives and the object of transitives have in common:

First, we have seen that in languages with active case marking, one class of intransitives treats their arguments like the object arguments of transitives.

Secondly, in languages with variable auxiliaries one type of auxiliary (the 'have' type) is restricted to transitives and to unergatives, and the other type (the 'be' type) to unaccusatives. We can interpret this as saying that the subjects of transitives and unergatives have properties in common that distinguishes them from the properties of the subjects of unaccusatives, which presumably have elements in common with the objects of transitives.

Third, in Italian *ne*-cliticization applies to both the objects of transitives and the subjects of unaccusatives:

(17) a. Gianni trascorrerà tre settimane a Milano.
      Gianni will spend three weeks in Milano.

   b. Gianni ne$_1$ trascorrerà tre t$_1$ a Milano.
      Gianni of-them will spend three in Milano.

(18) a. Sono passate tre settimane.
      are elapsed three weeks

   b. Ne sono passate tre.
      of-them elapsed three

(19) a. Hanno parlato tre ragazze.
      have spoken three girls

   b. *Ne$_1$ hanno parlato tre t$_1$.
      of-then have spoken three

Another diagnostic for unaccusatives is **locative inversion**, in which the subject follows the verb and we find some locative expression in sentence-initial position:

(20) a. In the distance appeared the towers and spires of Oxford.
   b. Out of the house came a tiny old lady.
   c. From his pocket protruded a notebook.

(21) a. *At this supermarket shop local residents.
   b. *In the cafés of Paris talk many artists.

We can see this as another object-like property of the arguments of unaccusatives, as direct objects in English appear after the verb. However, there are quite a few cases in which verbs that seem to be unergatives appear in this construction:

(22) a. At one end, in crude bunks, slept Jed and Henry.
   b. On the third floor worked two young women called Maryanne and Ava.

And some verbs that are unaccusative according to other tests don't appear in locative inversion:

(23) a. *On the top floor of the sky scraper broke many windows.
   b. *On the streets of Chicago melted a lot of snow.
   c. *On the courtyard dropped quite a few balls.

In general, the verbs that undergo causative alternation do not undergo locative inversion. Hence it appears that we should not talk about just one class of unaccusatives. There are at least two classes:

(24) a. Verbs like *break, freeze* etc. that indicate a **change of state**.
   b. Verbs like *come, arrive, protrude* etc. that indicate the **appearance** or **existence** of an entity.

Levin & Rappaport Hovav (1995) distinguish two types of change of state verbs: verbs that can express an **externally caused** change of state, and verbs that express an **internally caused** change of state (cf. Smith (1970), who uses the terms "control" and "independent activity"). Externally caused verbs are those that undergo causative alternation (e.g., *break*), whereas internally caused verbs don't:

(25) a. Mary shuddered / blushed / hesitated.
      b. *The ghost shuddered / blushed / hesitated Mary.

Notice the contrast to the near-synonym *shake*: Both *Mary shook* and *John shook Mary* are o.k. Notice that *shudder* applies to entities with self-controlled bodies, like people, animals, machines, whereas *shake* does not have this restriction. The control of internally caused verbs cannot be relinquished to an external controller. The subject may be animate, but need not be. The following verbs are listed as internally caused change of state verbs: *blister, bloom, blossom, burn, corrode, decay, deteriorate, erode, ferment, flower, germinate, molder, molt, rot, rust, sprout, stagnate, well, tarnish, wilt, wither.*

In addition, Levin & Rappaport Hovav (1995) assume that verbs of emission (of light, sound, smell, substance) are in this class, which was identified as verbs that express the "non-voluntary emission of stimuli" by Perlmutter (1978). For these verbs, internal characteristics of the subject argument result in the event described by the verb.

(26) a. The water burbled.
      b. The gold glittered.
      c. The green slime smelled terribly.
      d. Green slime oozed through the leaks.

While an external causer can be removed for externally caused verbs by the "by itself" construction, this construction is impossible with internally caused verbs because it would be redundant:

(27) a. The vase broke by itself.
      b. *Mary shuddered by herself.
      c. *The gold glittered by itself.

However, one and the same verb may occur in different construals. For example, *burn* can be externally caused ("consume by fire") and internally caused ("emits heat and light"):

(28) a. The leaves burned.
      b. The gardener burned the leaves.

(29) a. The fire burned.
      b. *The campers burned the fire.

Similarly, *deteriorate* can be used by some speakers as externally caused; L&RH cites *The pine needles are deteriorating the roof.*

It appears that not all the internally caused verb meanings cited are indeed unaccusatives. For example, auxiliary selection in German can go either way:

(30) a. Der Kaktus **hat** geblüht.   'The cactus has bloomed.'
      b. Das Eisen **ist** gerostet.   'The iron has rusted.'

(31) a. Das Gold **hat** geglänzt.   'The gold has glittered.'
      b. Das Wasser **ist** geströmt.   'The water has streamed.'

Another question is what is responsible for the distinction between externally caused unaccusatives and unergatives, which essentially do not undergo the causative alternation:

(32) a. The child cut the bread.
      b. *The bread cut. (On the interpretation: 'The bread came to be cut.')

Smith (1970): With verbs like *break* etc. the change could come about independently, without the volitional intervention of an agent.

A condition for unergative verbs is that they undergo **impersonal passives** and still can retain a *by*-phrase for the agent in languages like Dutch and German (cf. Perlmutter (1978) for Dutch). This is impossible for unaccusatives because there is no agent. Cf. the following examples:

(33) a. Er wordt hier door de jonge lui veel gedanst.
         'It is danced here a lot by the young people.'

      b. Er wordt in deze kamer vaak geslapen.
         'it is often slept in this room'

(34) a. *In dit weeshuis wordt er door de kinderen erg snel gegroeid.
         'In this orphanage it is grown very fast by the children'

      b. *Uit dit weeshuis wordt (er) door vele kinderen verdwenen.
         'From this orphanage it is disappeared by many children.'

But the criterion of impersonal passives identifies only a subclass of unergatives. Some unergatives (verbs that select 'have' auxiliaries) cannot occur in the impersonal passive construction (cf. Zaenen (1993)).

(35) *Er werdt (door the man) gebloed.
       'There was bled (by the man).'

It seems that impersonal passive constructions require that the event expressed by the verb is under full control of the agent, which is not the case for verbs of internal control.

7.1.3   Syntactic Theories of Unaccusatives

Syntactic theories of the distinction between unaccusatives and unergatives have concentrated on the fact that the argument of unaccusatives appears to be related to the direct object position, at some level of derivation.

In the Relational Grammar analysis of Perlmutter (1978), the argument of unaccusatives is a deep-structure object that then is assigned the role of a subject due to a general restriction against subjectless constructions. In the analysis of Burzio (1981) in a Government and Binding framework, unaccusative ("ergative") verbs subcategorize only for an object NP that then is moved to the subject position. Unergative verbs, on the other hand, have a deep structure subject that surfaces as a subject.

This type of analysis has been combined with the proposal of Williams (1981), who distinguishes between "external" and "internal" arguments. The argument position of the subject of transitives and the subject of unergatives is external, the argument position of the object of transitives and the subject of unaccusatives is internal.

As these analyses stand, they appear to be a rephrasing of the problem to be solved: Why do certain verbs fit into certain structural patterns?

7.1.4 Aspectual Approaches

Van Valin (1990) and Zaenen (1993) stress the **aspectual** peculiarity of unaccusatives. Van Valin starts from the four aspectual classes of Vendler:

(36) a. states, e.g. *love*, *know*, *be blue*
b. activities, e.g. *walk*, *snore*, *watch*
c. achievements, e.g. *reach*, *arrive*, *die* ,
d. accomplishments, e.g. *recover*, *eat (an apple)*,

There are a number of tests for those classes. Accomplishments allow for time frame adverbials like *in an hour* without change of the meaning to special readings:

(37) a. *Mary knew John in an hour.
b. *Mary walked in an hour. [only by reinterpretation]
c. *Mary arrived at the station in an hour. [only by reinterpretation].
d. Mary recovered / ate an apple in an hour.

Activities and States, but not Accomplishments and Achievements, allow for time span adverbials like *for an hour* without change of the meaning of the verb to iterative or partial readings:

(38) a. Mary knew John for an hour.
b. Mary walked for an hour.
c. *Mary arrived at the station for an hour.
d. *Mary recovered / ate an apple for an hour.

And Activities, Accomplishments, and to some degree Achievements, but not States, allow for progressive marking:

(39) a. *Mary is knowing John.
b. Mary is walking.
c. Mary was arriving at the station (when the bomb exploded)
d. Mary is recovering / eating an apple.

Following Dowty (1979), states can be analyzed as involving a simple property, activities as performing an act that results in a property, achievements as the obtaining of a property, and accomplishments as a relation between an activity and an achievement. Schematically,

(40) a. *know*:   KNOW(X, Y)
b. *walk*:   DO(X)(MOVE(X)
c. *arrive*:   BECOME(HERE(X))
d. *build*   DO(X) CAUSE BECOME(Y)

Van Valin argues that various languages draw the dividing line between unaccusatives and unergatives ("split intransitivity") according to such aspectual criteria. For example, auxiliary selection in Italian is dependent on the classification of the verb as activity or accomplishment. Certain verbs can be in either category:

(41) a. Luisa **ha** corso nel parco / *in un'ora.
Luisa HAVE run in the park / in one hour.

b. Luisa **è** corsa a casa in/per un'ora.
Luisa IS run to house in/for one hour. (with *per*: reinterpretation)

The split can occur between statives and the rest (as in Georgian, where, according to Van Valin's analysis, statives have dative subjects), or between activities and the rest (as in Acehnese).

7.1.5 Unaccusatives in the Theory of Dowty (1991)

Dowty (1991) has developed a theory of the mapping of thematic roles to syntactic argument positions based on semantic properties of these roles. Dowty considers two sets of such properties:

(42) Proto-agent properties:
a. volitional involvement in the event or state
b. sentience and/or perception
c. causing an event or state in another participant
d. movement (relative to the position of another participant)
e. exists independently of the event named by the verb.

Proto-patient properties:
a. undergoes change of state
b. incremental theme
c. causally affected by another participant
d. stationary relative to movement of another participant
e. does not exist independently of the event, or not at all.

The more proto-agent properties a particular thematic role has, the higher the chances for it to be realized as the subject in the basic verb form; the more proto-patient properties it has, the higher the chances for it to be realized as the object. We will consider the motivation for many of these properties later.

Dowty uses these proto-role properties for the unaccusative/unergative distinction. The underlying idea is that unaccusative verbs are intransitive verbs whose argument has predominantly proto-patient properties. We observe the following:

• Intransitive verbs that imply volitional involvement and sentience for their argument are always unergative.
• Intransitive verbs that imply a change of state for their argument, that are causally affected by another participant, or that do not exist independently of the event, tend to be unaccusative.

Dowty's rules allow that languages draw the border between unergatives and unaccusatives differently, which was stressed by Rosen (1984). For example, various linguistic criteria led to the following classification of verbs as unergative or unaccusative:

(43)

Verb	Unergative	Unaccusative
'die'	Choctaw	Italian
'sweat'	Italian	Choctaw
'bleed'	Italian	Turkish, Eastern Pomo
'suffer'	Italian	Choctaw
'be hungry'	Lakhota	Choctaw
'sneeze'	Italian, Dutch, Choctaw	Eastern Pomo, Choctaw

7.1.6   The Linking Rules of Levin & Rappaport-Hovav

Levin & Rappaport Hovav (1995) is similar to Dowty's proposal, as it works with linking rules for thematic roles that take semantic properties of arguments into account. But the rules do not consist of a weighed sum of various factors.

(44) a. The Immediate Cause Linking Rule.
        The argument of a verb that denotes the immediate cause of the eventuality
        described by that verb is its external argument
        (i.e., if the verb is intransitive, it will be unergative)

      b. The Directed Change Linking Rule
        The argument of a verb that corresponds to the entity undergoing the directed
        change described by that verb is its direct internal argument.
        (i.e., if the verb is intransitive, it will be unaccusative).

      c. Existence Linking Rule
        The argument of a verb whose existence is asserted or denied is its
        direct internal argument.

      d. Default Linking Rule
        An argument of a verb that does not fall under the scope of any of the other linking
        rules is its direct internal argument.

Notice that these rules apply for transitive verbs as well, where they describe the map to subject or object position.

Rule (a) captures internally caused verbs, including emission verbs, which are often conceptualized as being caused. Also, verbs that express the maintaining of a position (e.g., *sit, knee*).

Rule (b) captures change-of-state verbs. While this rule covers much what is covered by the aspectual approaches (a change of state is typically an achievement or accomplishment), it is more comprehensive, as it also applies to degree achievement verbs like *widen, dim, harden, cool* that do not belong to this aspectual class but behave like unaccusatives (in English).

Rule (d) captures verbs of involuntary motion, like *bounce, roll, spin*. They do not fall under rule (b) or (c), but they are unaccusative, in their intransitive use. [However, one might say that they undergo a change of location.]

The rules are ordered. For example, 'blush' could be conceptualized as an internally caused activity, or as a change of state. Languages actually differ in how they treat blushing (cf. McClure (1990)). For example, Dutch *bloezen* is internally caused (e.g., it needs 'have' auxiliary, is telic, etc.), whereas Italian *rossire* (and German *erröten*) is a change of state verb. It is argued that in those languages rule (b) supersedes rule (a).

7.2 Movement Verbs

7.2.1   Lexicalization Patterns of Movement Verbs

In this section we will discuss how movement is expressed in languages, and we will in particular have a look at movement verbs. The most detailed theory of movement verbs and differences between languages in the way how they express movement has been put forward by Leonard Talmy (cf. Talmy (1975), Talmy (1985)), who observes different **lexicalization patterns** for movement verbs in different languages.

Talmy considers several aspects of a motion event that are linguistically relevant. First, there is the **moved object** (which Talmy calles "**figure**" as opposed to "**ground**", the medium in which movement occurs, or the reference object with respect to which movement is perceived). Secondly, we can distinguish between the **motion** itself and various aspects of the location of the movement (the source, the path, the goal) called **location**. Third, we can study the **manner** (of the motion or its relation to a location). Fourth, we can study the **cause** of a movement (again, of the motion itself or its relation to a location). Specific verbs can combine certain aspects of the meaning, and languages differ in the type of their most characteristic movement verbs.

Motion + Manner/Cause

In the motion + manner/cause type the verb expresses both the fact of motion and its manner or cause. Path is expressed separatly, e.g. by prepositions and particles. The typical movement verbs of English are of this type:

(45) a. John walked [MOTION+MANNER] into [PATH] the room.
      b. Mary climbed [MOTION+MANNER] down [PATH]
      d. Sue kicked [MOTION+CAUSE] the ball right into [PATH] the goal.

(46) a. move+manner:
        non-agentive: *slide, roll, bounce, sing, swirl, squeeze (through the opening)...*
        agentive: *slide, roll, bounce, twist (the cork out of the bottle)*
        self-agentive: *run, limp , jump , stumble , rush*

      b. move+cause:
        non-agentive: *The napkin blue off the table*
        agentive: *push, threw, kick, blow, saw (the tree down)*

Also, verbs that describe position can integrate the manner component:

(47) *stay, lie, lean, hang…*

Motion + Path

In this type the verb expresses the fact of motion and the type of path. This is the most freqent type in Romance, Semitic and Polynesian languages. Examples are from Spanish. Manner of motion can be expressed by adverbials, but is not lexicalized with the verb.

(48) a. La botella entró [MOTION + PATH] a la cueva (flotando) [MANNER]
        the bottle moved-in the cave floating
        'The bottle floated into the cave.'

      b. La botella pasó por la piedra (flotando).
        the bottle moved-by POR the rock floating
        'The bottle floated past the rock.'

      c. El globo subió por la chimenea (flotando).
        the balloon moved-up POR the chimney floating
        'The balloon floated up the chimney.'

      d. La botella iba por el canal (flotando).
        the bottle moved-along POR el canal floating
        'The bottle floated along the canal.'

As these examples indicate, the set of basic movement verbs differ in the path they describe, whereas this information is typically incorporated in prepositions in English. Spanish still makes use of prepositions, but they have a wider range of meanings, as illustrated above with *por*.

We find conflation of movement and path information with agentive movement verbs as well:

(49)   a. Metí el barril a la bodega rodandolo.
         moved-in the keg to the storeroom rolling it
         'I rolled the keg into the storeroom.'

       b. Quité el papel del paquete cortandolo.
           move-off the paper from the package cutting it
           'I cut the wrapper from the package.'

Interestingly, English has borrowed many movement verbs of this type from French, cf. Wienold (1995), who cites *enter, exit, pass, descent, return, circle, cross, traverse, ascend, escape, recede* and many others, wheras it has very few Germanic verbs of this type (*rise, leave*).

<u>Motion + Figure (moved object)</u>

A somewhat more exotic lexicalization pattern combines the fact of motion with information about the moved object (called "figure" as opposed to "ground"). English has very few verbs of this type (e.g. *rain*, water moving downward in a particular manner; *spit*, causing spit to move). Talmy's prime example of this type is Atsugewi, a Hokan language of California.

(50) Atsugewi verb roots for movement + figure:
     a. -lup-:   for a small shiny spherical object (e.g. a round candy, an eyeball,)
                  to move / be located.
     b. -caq-:   for a slimy lumpish object (e.g. a toad, a cow dropping)
                  to move / be located.
     c. -qput-   'for loose dry dirt to move / be located'
     d. -staq-   'for runny icky material (e.g. mud, manure, guts, chewed gum)
                  to move / be located.

Examples, with the root *staq*, approximate transcription of morpheme sequence:

(51) a. /w-uh-staq-ik-ᵃ/
        3ʳᵈ-by gravity-root-on the ground-(3ʳᵈ)
        'Runny icky material is located on the ground from its own weight acting on it',
        e.g. 'Guts are lying on the ground.'

1)   /w-ca-staq-ict-ᵃ/
     3ʳᵈ-by wind-root-into liquid-(3ʳᵈ)
     Lit. 'Runny icky material moved into liquid from the wind blowing on it.'
     e.g. 'The guts blew into the creek.'

2)   /s-w-cu-staq-cis-ᵃ/
     I-3ʳᵈ-by linear object moving axially-root-into fire-(3ʳᵈ)
     Lit. 'I caused it that runny icky material move into fire by acting on it with a linear object moved axially',
     e.g. 'I prodded the guts into the fire with a stick.'

<u>Other Conflations</u>

Talmy observes that the conflation Figure + Ground hardly ever occurs, and is never a major pattern. Possible examples are *deplane* and *emplane* with meanings 'move with respect to an airplane'.

More than two aspects of motion can conflate, cf. *to shelve* 'cause to move onto a shelf' (Motion + Path + Ground), *to mine* 'cause to move from a mine', *to powder* 'cause facial powder to move onto' (Motion + Path + Figure).

<u>Separation of Meaning Constitutents</u>

Choi & Bowerman (1991) point out another type of lexicalization of movement verbs in which the meaning components remain separate. This is the case in the way how intransitive movement events are expressed in Korean:

(52) John-i pang-ey (ttwui-e) tul-e o-ass-ta.
     John-SUBJ room-LOC (run-CONN) enter-CONN come-PST-DECL
     'John came in(to) the room (running)'

Notice that *ttwui* epxresses MANNER, *tul* expresses PATH, and *ass* expresses DEIXIS (i.e., movement with respect to a reference point). Also, the moved object or figure, and the ground, are lexicalized separately (*John-i*, *pang-ey*). The gloss 'enter' for *tul* is not quite correct, a better translation would be 'in' or 'into', but notice that *tul* is a verb.

There are two deictic verbs, *kata* 'go' and *ota* 'come'. The basic path verbs are *olla* 'ascend', *naylye* 'descend', *tule* 'enter', *na* 'exit', *cina* 'pass', *ttala* 'along', *thonghay* 'through', *kaloc-ille* 'across', *tulle* 'via'. [1]

Interestingly, with transitive movement events or caused motion we find a high degree of lexical conflation. Some examples; only the verbs in (a) are related to intransitive movement expressions.

(53) a. *ollita* 'cause to ascend', *naylita* 'cause to descend'

     b. *nehta* put/take things in/out of a loose container
        tamta put/take multiple objects in/out of a container that one can carry
        nohta 'put something losely on a surface'
        anta 'put something into one's arms'
        mwulta 'put something into one's mouth'

> Presentation: Choi & Bowerman (1991) also discuss the acquisition of movement verbs in English and Korean, which is quite different. Present the main results of this part of their article.

<u>Suppression of movement aspects</u>

Slavic languages have a small class of movement verbs that occur in two forms, one "determinate", one "indeterminate". The latter is used to express non-directed, iterative or habitual

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[1] Chinese may be of a similar type. Cf. *tamen pao-chu-lai le* 'they run-exit-come ASP', 'They came running out'.

meanings. It appears that the indeterminate series conceptualizes movement by suppressing the path.

7.2.2 Deixis in movement verbs

We have seen with the Korean data that the dimension of **deixis** plays an important role for the lexicalization of movement verbs.

Conflation of Motion + Deixis

In general, movement verbs can be marked as implying a movement **towards** or **away from** the deictic center ("origo", typically the position of the speaker, but this may be shifted). It is possible that all languages have two basic verbs that express just that:

(54)   English: *come, go*, Turkish: *gelmek, gitmek*, Swahili: *kuja, kwenda*
         Hebrew *lavo, lalekhet*, Chinese: *lai, qu*…

(Where 'movement towards the speaker' vs. 'away from the speaker' is a picture that is too simplistic; cf. Fillmore (1966), Fillmore (1971).)

There are more complex systems, e.g. in Palauan (Austronesian), cf. Anderson & Keenan (1985):

(55)   me 'come' (towards speaker),
         eko 'go' (towards addressee)
         mo 'go' (away from speaker and addressee)

We also often find this type of alternation with transitive movement verbs:

(56)   English *bring — take* (vs. neutral *carry*)

These are cases in which we find a **conflation** of DEIXIS and MOTION.

Inflectional Realization of Deixis

There are languages in which deixis is marked in an inflectional way. One example is Abaza (Northwest Caucasian), discussed in Anderson & Keenan (1985).

(57)   a. ʔayra 'to come here', nayra 'to come [go + arrive] there'
         b. ʔagra 'to bring', nagra 'to take', gara 'to carry'

In general, the prefix ʔa indicates that the motion described by the verb is towards the speaker, and na indicates movement away from the speaker. Interestingly, ʔa can also be used, e.g., for *I wrote to you* if the addressee is located at the home of the speaker.

Derivational Realization of Deixis

German has a productive class of derivational prefixes that denote deictic meaning components:

(58)   a. *hingehen* 'go [away from speaker]', *hergehen* 'go [towards speaker]'
         b. *hintragen* 'carry [away from speaker]', *hertragen* 'carry [towards the speaker]'

Meaning components related to Path can be realized in a similar way:

(59)   *runtergehen* 'go down', *raufgehen* 'go up', *rübergehen* 'cross', *rausgehen* 'exit', *reingehen* 'enter', etc.

Only one prefix is allowed (e.g., **hinreingehen*). Compare this with the situation in Korean (cf. (52)), which realizes deixis and path separately.

7.3 Dative Alternation

7.3.1   Introduction

The dative alternation in English affects the realization of certain ditransitive verbs:

(60)   a. Mary gave John a book.   (double object frame)
         b. Mary gave a book to John.   (prepositional object frame)

It affects "give" verbs that inherently signify acts of giving including *sell, pay, refund, feed*, verbs of future having that express commitments that a person will have something at a later point like *allot, award, cede, grant, promise*, the verbs *bring* and *take*, "send" verbs like *forward, mail, ship*, "slide" verbs like *float, roll*, verbs of throwing like *fling, hurl, kick*, verbs of message transfer like *ask, read, quote, show, teach, tell, write*, and related verbs of instrument of communication like *cable, phone, e-mail* (see Levin (1993) p. 45ff., also for non-alternating verbs).

The dative alternation was studied intensively, in particular in the context of the problem of language acquisition (cf. Braine (1971), Baker (1979), Gropen, Pinker, Hollander, & Goldberg (1989), Pinker (1989), Baker (1992)). The problem is how children actually learn which verbs undergo (for example) the dative alternation, and which ones don't, given the absence of negative evidence. We will discuss the acquisition problem in a later chapter, and concentrate here on the proper description of this verb class.

7.3.2   Restrictions for the Dative Alternation

A simple-minded description of the dative alternation would claim that verbs that occur in the double object frame also occur in the prepositional object frame (with *to*), and perhaps vice versa:

(61)   Rule for syntactic subcategorization frames:
            [— NP$_1$ [*to* NP$_2$]]   [— NP$_2$ NP$_1$]

The problem of this simple-minded rule is that it would vastly overgeneralize (see discussion in Green (1974), Oehrle (1976), Pinker (1989) ch. 4). There are various restrictions:

•   In double-object constructions, the referent of NP$_2$ "possesses" the referent of NP$_1$.

(62)   a. I sold Mary the car.
         b. I sold the car to Mary.
         c. *I drove Mary the car.
         d. I drove the car to Mary.

(63)   a. They spared the policeman the punishment.
         b. *They spared the punishment to the policeman. [*spare* expresses non-possession]

    However, the notion of possession has to be qualified. In can apply to information (e.g., *read, show*), and it may be future or potential possession (e.g., *forward, offer, promise*)

•   In double-object constructions, the referent of NP$_2$ must be an animate being.

(64)   a. I sent a package to the border.
         b. I sent a package to the boarder.
         c. *I sent the border a package.
         d. I sent the boarder a package.   (example due to Joan Bresnan).

(65) a. We sent a package to London.
    b. We sent London a package.
      [only if "London" is used metonymically for an institution].

- For prepositional constructions, the referent of NP_1 must undergo a movement from one location to another:

(66) a. The explosion gave John a headache.
    b. *?The explosion gave a headache to John.

- For double-object constructions, the verb must not express a transmission by continuous imparting of force:

(67) a. Mary hit/kicked/threw the ball to John.
    b. Mary hit/kicked/threw John the ball.
    c. Mary pushed / pulled / lowered / hauled the box to John.
    d. *Mary pushed[2] / pulled / lowered / hauled John the box.

The sole exception to this rule are *take* and *bring* , which can be taken to apply continuous imparting of force. However, these verbs do not express a manner of movement, but incorporate a deictic component.

- Verbs of speaking allow the double object construction only if they do not express a manner of speaking.

(68) a. John told/wrote/read/cited/quoted the news to Mary.
    b. John told/wrote/read/cited/quoted the Mary the news.
    c. John shouted/screamed/yelled/murmured the news to Mary.
    d. *John shouted/screamed/yelled/murmured the Mary the news

But notice that verbs expressing an instrument of communication are fine, e.g. *John e-mailed Mary the news*.

- Latinate verbs, often borrowed from French, typically don't have the double object construction. (The double object construction, incidentally, is related to the Germanic construction with dative and accusative object, cf. German *dem Hans* [DAT] *den Roman* [ACC] *geben* 'give Hans the novel'; French has no double object construction, cf. *donner le roman à Jaques / *donner Jaques le roman*).

(69) a. Mary gave the sofa to the museum.
    b. Mary gave them the sofa.
    c. Mary donated the sofa to the museum.
    d. *Mary donated them the sofa.

Cf. also *report, explain, distribute, illustrate, recite, transport* etc. The decisive factor appears to be the metrical foot pattern: the double object construction is possible with verbs consisting of one metrical foot (monosyllabic verbs, andpolysyllabical verbs with initial stress or with stress on the second syllable if the first syllable is a schwa, like *allot*, *assign*, *award*). Latinate verbs that follow this pattern undergo the alternation (*promise, offer*). Also, non-Latinate verbs that don't follow the pattern don't undergo

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[2] Baker remarks that *push* in in soccer allows for the double-object construction, e.g. *Maradona pushed him the ball*. But in this use it involves an instantaneous application of force. [Green, 1974 #6839] reports different intuitions for some of these verbs; for her, verbs like *carry, push* etc. do alternate.

the alternation (*broadcast*). Cf. Grimshaw & Prince (1986). Pinker (p. 123) speculates that there might be semantic reasons behind the difference between those two classes: The non-alternating forms are in general semantically more complex (e.g., *give* vs. *donate*).

One question not addressed so far concerns the semantic differences between the alternating forms.

- The *to*-NP is a goal, the corresponding NP in double-object datives is a patient or theme. With this comes a subtle semantic effect: the double-object construction expresses affectedness.

(70) a. Mary taught French to the students. [possibly with no effect]
    b. Mary taught the students French. [the students have learned it; Green (1974)].

(71) a. John threw the ball to Mary.   [possibly Mary didn't get it.]
    b. John threw Mary the ball.   [Mary got it]

(72) a. Bill told his sorrows to God.   [could be uttered by an atheist]
    b. Bill told God his sorrows.   [implies that God exists]

(73) a. John gave Mary a kiss.
    b. John kissed Mary.   [presumably, *Mary* has the same thematic role]

This difference can be explained in semantically based linking theories by assuming that affectedness favors a realization of an argument as a direct object (cf. e.g. Dowty (1991)).

- The constructions show differences in their discourse focus (cf. Erteshik-Shir (1979)).

(74) a. A: What did he do with the book?
      B: He gave the book / it to Mary. / ? He gave Mary the book. / *He gave Mary it.

    b. A: What did he do to please Mary?
      B: He gave Mary the book. / ? He gave the book to Mary.

7.3.3   The Theory of Pinker (1989)

Pinker (1989) suggests that the many exceptions to a simple syntactic rule like (61) make a rule of this type quite implausible. On the other hand, we cannot assume that individual verbs are marked as undergoing or not undergoing the dative alternation; this does not explain why extensions to new verbs are systematic (e.g., *fax, e-mail*), why in experiments subjects behave predictable with nonce verbs, and why there are the semantic regularities observed in the preceding section.

Pinker suggests a scheme that relates two **semantic** representations to each other:

(75) Rule for semantic representations:
    "X CAUSES Y to GO TO Z"   "X CAUSES Z to HAVE Y",
    where "X causes Y to go to Z" is generally realized as NP_X V NP_Y to NP_Z,
    and "X causes Z to have Y" is generally realized as NP_X V NP_Z NP_Y.

This would explain that only verbs that express a change of possession undergo the dative alternation, that Z is affected and must exist in the double object construction (change of possession means being affected), that Z must be animate (only animates can possess things). A fuller representation is the following:

(76) *Bob VERBed the ring to Sue.*   *Bob VERBed Sue the ring.*

The capitalized constituents are terms of a (universal?) representation language. Notes indicate constituency. The preposition object construction relates a causation event to a movement event that it effects (which includes future possession), the double object construction relates a causation event to a state of possession. Certain participants in the two eventualities are co-indexed. [It is unclear why the ring cannot be coindexed in the upstairs event in the double object pattern.] Linking rules make use of these structures; e.g., the DO will be the second argument of the upstairs event.

Rule (75)/(76) is a "broad-range" rule that has to be supplemented by "narrow-range" rules that may filter out certain cases to which the broad-range rule applies. Specific verbs add special features to the general representation (cf. e.g. the prepositional object variant of *tell*), and specific additions, like MANNER, block the dative alternation (cf. *shout*):

The difference between verbs like *throw* vs. *pull* can be rendered by assuming that for *throw* the causation events precedes the movement event (presumably, the two events are simply unrelated, and the nature of causation gives us this sequence as the most likely interpretation), whereas for *pull* we have that the causation event and the movement event overlap temporally. This additional identification of the two events should rule out the dative alternation . [Notice that in the double object construction we don't even have HAVE a second event. Also, notice that dative alternation with *throw* verbs shows that in those cases specification of a manner is fine. This suggests that *Bob shouted Mary the news* is bad not because a manner is specified, but because the two events are cotemporaneous, just as with *pull*]. The alternating verbs *bring* and *take* are a counterexample, but they have a deictic component, and the presence of that can be made responsible for blocking the filter against cotemporaneous events. [Alternatively, *bring* and *take* could be analyzed as not expressing cotemporaneity at all, but an identification of the place of the agent and the place of the theme; they would then be "transitive" forms of *come* and *go.*]

One important claim is that only certain semantic features will be "visible" or relevant for syntax (the capitalized constituents); others, e.g. different manners, will not play a role. Pinker calls this the "Grammatically Relevant Subsystem" hypothesis and contrasts it with the "Unrestricted Conceptual Representation" hypothesis (p. 166) which contents that any cognitive contrast could become relevant for grammar.

Baker (1992) suggests that there is no need to have even rules like (75)/(76). That is, we can entertain the notion that English provides for separate subcategorization frames.

7.4 Locative Alternations

7.4.1   Introduction

The locative alternation in English is exemplified by the following examples:

(77) a. John loaded the wagon with hay.   (*with* variant)
      b. John loaded hay on the wagon.(locative variant)

(78) a. Mary sprayed the wall with paint.   (*with* variant)
      b. Mary sprayed paint on the wall.   (locative variant)

The alternation involves the expression of the location argument and the locatum (theme) argument. In the *with* variant, the location is realized as the direct object, and in the locative variant, the locatum is realized as the direct object. In both cases the second argument is realized as a prepositional object (*with* for the locatum, various locative preposition for the location). The verbs of the so-called *spray/load* alternation express that the locatum is moved to the location; there is a smaller class of verbs that express removal:

(79) a. John cleared the table of dishes.
      b. John cleared dishes from the table.

Cf. Levin (1993) for this and other variants, e.g. the intransitive *Bees are swarming in the garden / The garden is swarming with bees.*

7.4.2   The Holistic Effect

The two variants of the locative alternation come with a subtle change of meaning. In the *with*-variant *load the wagon with hay* it is conveyed that the wagon is "full" after the event is carried out to its end. In the locative variant *load hay on the wagon* nothing like that is implied (of course, it is also not excluded). This has been called the **holistic effect**. of the locative alternation. This effect can be made visible by modification with *completely* or *partly* (cf. Dowty (1991)):

(80) a. John completely loaded the hay onto the wagon.
         (all the hay is moved, there might be still some space on the wagon)

      c. John completely loaded the wagon with the hay.
         (the wagon is full, there might be some hay left [this is less clear]).

(81) a. Mary partly sprayed the paint onto the wall.
         (only part of the paint was used, no restriction for the wall)

      b. Mary partly sprayed the wall with the paint.
         (only part of the wall is affected, no restriction for the paint).

In Dowty's theory, the holistic effect translates into the proto-patient role of incremental theme. As this is a criterion for the selection of an argument as direct object, the patterns of locative alternation confirm his theory: The "holistic" (= incremental) argument appears as direct object, the other argument appears as oblique object.

The holistic effect can also be related to an observation by Talmy (1975). Locative NPs are typically represented as extended (e.g., *on the table*, *in the box*), whereas other NPs typically are represented as non-extended. Hence with non-locative NPs we cannot even distinguish between states of being partially or totally affected; whenever a non-extended object is said to have undergone a change of state, this necessarily applies to the whole object.

The fact that we have a definite semantic change with the locative alternation indicates that we should not just assume a syntactic relation between two categorization frames:

(82)   [— NP$_1$ *with* NP$_2$]   [— NP$_2$ [P$_{Loc}$ NP$_1$]]

Anderson (1971) argued against a purely syntactic treatment of alternations like the locative alternation because they exhibit such shifts of meaning.

7.4.3   The Locative Alternation in Pinker

Pinker (1989 p. 77ff), following Rappaport and Levin, argues for two different underlying argument patterns:

(83) a. Locative pattern: "X moves Y into/onto/… Z"

      b. *with*-pattern: "X causes Y to change its state (by means of moving Z to Y)"

The locative variant is a transitive movement verb. As with movement verbs in general, a manner of movement can be specified, in particular how the agent initiates the movement (spilling, injecting, ladling)) or how the object moves (e.g., pouring, spraying). But movement verbs typically do not express anything about a change of the location.

The *with* variant is a transitive change-of-state verb. As with the locative variant, the type of the movement can be specified. But in addition it is implied that Y changes its state as a result of the movement. We have a clearer change of state if the object is "totally" affected. Hence the holistic effect of the *with*-variant.

The patterns in (83) explain why the holistic effect cannot be taken literally. Example (84) can be true even if the statue is not totally covered. It is sufficient for the classification of the statue as being tainted that some paint is sprayed on it.(This would not be sufficient, e.g., for a fence to undergo a change from not being painted to being painted.)

(84)   The vandals sprayed the statue with paint.

Pinker (p. 124ff., p. 228ff.) discusses a number of specific verb classes that do or do not undergo the locative alternation. He assumes that it is indeed an alternation, that is, that one pattern is derived from another one. For some verbs, the locative pattern is basic, for others, the *with*-variant :

(85)   a. She piled the books. / *She piled the shelve.
            Locatum argument is obligatory, hence the locative variant is basic ("content-oriented")

        b. He stuffed the turkey. / *He stuffed the breadcrumbs.
            Location argument is obligatory, hence the *with*-variant is basic. ("container-oriented")

But there are verbs for which both arguments are obligatory, or for which both arguments are non-obligatory, which can be taken to show that we should not assume any derivational relationship:

(86)   a. He loaded the wagon. / He loaded the hay.

        b. She packed the suitcase. / She packed the laundry.

Let us now consider various verbclasses that do or do not alternate.

Verbs expressing simultaneous forceful contact and motion of a mass against a surface do alternate (*brush, dab, plaster, rub, smear, smudge, spread...*). The locative form is basic, but the *with*-form is possible presumably because this type of action leads to a definite change of the locatum.

(87)   a. Mary brushed the paint on the wall.
        b. Mary brushed the wall with paint.

Verbs expressing movement of a mass via the force of gravity do not alternate (*dribble, drip, dump, pour, spill*). They only have the locative form, presumably because they specify a particular manner of a movement and hence can be applied only to the movement verb pattern.

(88)   a. John poured the milk into the glass.
        b. *John poured the glass with the milk.

On the other hand, verbs expressing that force is imparted to a mass, causing ballistic motion, do alternate (*inject, splash, splatter, spray, sprinkle, squirt*). The *with*-form is presumably possible because the imparting of force leads to a specific change of the object.

(89)   a. Mary splashed water on the dog.
        b. Mary splashed the dog with water.

Verbs expressing a spatial arrangement ("a vertical arrangement on a horizontal surface") do alternate (*heap, pile, stack*). They allow for the *with* construction presumably because the particular arrangement can be seen as being due to a particular quality of the movement. The locative form is basic, presumably because the particular configuration of the objects is seen as a particular state of the object (cf. also *a stack of books, a heap of bricks*).

(90)   a. John stacked books onto the shelf.
        b. John stacked the shelf with books.

Verbs that express that mass is expelled do not alternate (*emit, excrete, expel, secrete, spit, vomit...*). The reason presumably is that the source of the movement does not predict any specific quality change of the object related to the basic meaning of the verb.

(91)   a. John spat tobacco juice onto the table.
        b. *John spat the table with tobacco juice.

Verbs that express that mass is is caused to move in a widespread, nondirected distribution do alternate (*scatter, sow, strew*). Presumably these verbs can express a specific state of the object due to the quality of the movement. [This class is marginal, however.]

(92)   a. The farmer scattered seeds onto the field.
        b. ?The farmer scattered the field with seeds.

Verbs that express that one object is put around another object do not alternate (*coil, spin, twirl, twist, whirl, wind*). Presumably there is no definite change of the object involved.

(93)   a. Mary coiled the chain around the pole.
        b. *Mary coiled the pole with the chain.

Verbs of attachment do not alternate either (*attach, fasten, glue, nail, paste, pin, staple, stick, tape*). Presumably, the type of attachment of another object does not constitute a specific state change for an object.

(94)   a. John taped the note on the letter.
        b. *John taped the letter the note.

Pinker does not mention verbs that express the use of a particular instrument for the movement. They generally do not alternate (*hammer, ladle, shovel, channel, spoon*; exception: *brush*). Presumably the used instrument does not impart any specific change to the object.

(95)   a. Mary hammered the nail into the board.
        b. *Mary hammered the board with the nail. [o.k. in instrument interpretation]

Verbs that express that objects is forced into a container against the limits of its capacity do alternate (*pack, cram, crowd, jam, stuff, wad*). It is mainly a property of the container to be affected to its limits, hence the *with*-form.

(96)   a. John packed the books into the suitcase.
        b. John packed the suitcase with books

Related to that, verbs that express that objects are put into a container in their intended use are alternating. We find the "intended use" meaning with the *with*-form, presumably because an object that is intended to contain certain objects undergoes a change of state when it indeed receives those objects (*load, pack* [for suitcases], *stock* [for shelves]):

(97) a. John loaded the gun with the bullets. (intended use only)
      b. John loaded the bullets into the gun. (could be in a non-intended way)

Verbs that express an esthetic or qualitative change of an object that arises with the addition of another objects only show the *with*-form, as predictable (*adorn, burden, clutter, endow, enrich, litter, soil, stain, taint*).

(98) a. Mary stained the carpet with wine.
      b. *Mary stained wine onto the carpet.

Verbs that express that a surface or volume is completely covered or filled do not alternate (*flood, coat, cover, pad, pave, tile, soak, drench, saturate*). They only come in the *with*-form, the reason being that it depends on the locatum whether it is completely affected, and hence this can be construed as a property of the locatum. (Contrast with the *coil* verbs above).

(99) a. John covered the baby with a blanked.
      b. *John covered the blanket on the baby.

Verbs that express that a set of objects is distributed over a surface behave similarly. So it is not complete coverage in the strict sense that is necessary (*blot, riddle, speckle, spot, stud*).

(100) a. They studded the coat with the metal stars.
      b. *The studded the metal stars onto the coat.

In general, Pinker suggests motivations for the existence or the absence of alternations like the following:

- Types of actions that can be construed as something that can happen to the location are more likely construed with the location as direct object. (Recall that the direct object has patient-like properties).
- Types of actions that can be construed as something that can happen to thelocatum are more likely construed with the locatum as the direct object, e.g. if they specify a particular state of the locatum.

7.4.4 A Related Class

Notice that there are related alternations, e.g. verbs of image impression (*brand, emboss, engrae, etch, imprint, mark, set, stamp, tattoo*):

(101) a. He branded the fence with his name.
      b. He branded his name onto the fence.

And we find that certain verbs that in general would belong to this class don't alternate:

(102) a. She wrote her name on the paper.
      b. *She wrote the paper with her name.

(103) a. *He illustrated the picture onto the page.
      b. He illustrated the page with a picture.

Verbs that behave like *write* are *copy, plot, sketch, trace, doodle, scrawl, scribble, draw, paint*[3]*, write* that express properties of the type of pattern impressed (by their source, the manner of creation, or the symbolic type). So the impressed pattern occurs as the direct object. Verbs that behave like *illustrate* are *adorn, embrodier, engrave*; they express an esthetic, evaluative, or purposive change of the surface. So the locatum occurs as the direct object. The alternating verbs express some particular manner or means in which the surface was affected, or properties of the surface itself; crucially, these are physically defined properties.

7.5 Psych Verbs

7.5.1   Introduction

Psych verbs (or verbs of psychological state) are verbs that express that some stimulus affects an experiencer. One remarkable fact about these verbs in English is that they show two distinct patterns. The *amuse* verbs express the stimulas as the subject, and the experiencer as the object in the basic form:

(104) Stimulus-subject verbs:
      a. The clown amused the children.
      b. The student impressed the professor.
      c. These numbers baffled the statistician.

Levin (1993) p. 189 has a long list of such verbs (e.g., *alarm, awe, bewilder, captivate, convince, delight, disgust, enchant, excite, frighten, frustrate, horrify, overwhelm, shock, stimulate, tease, trouble, unnerve, worry...*)

The *admire*-type verbs express the experiencer as the subject and the stimulus as the object:

(105) Experiencer-subject verbs:
      a. The children admired the clown.
      b. The pauper envied the millionaire.

There are far fewer verbs in this class, suggesting that stimulus/subject, experiencer/object is the more natural pattern for English. Other examples are *appreciate, enjoy, favor, love, respect, tolerate, surprise, deplore, detest, distrust, dread, fear, hate, resent.* Apparently related verbs like *fear/frighten* are sometimes called **flip** verbs.

The two psych-verb classes can be identified by certain properties. Croft (1991) p. 215 points out that only stimulus-subject verbs allow for *by*-phrases, whereas experiencer-subject verbs express means by causal clauses:

(106) a. John pleased his boss by coming in early every day.
      b. *John was liked by his boss by coming in early every day.
      c. John was liked by his boss because he came in early every day.

There are two additional small classes of psych verbs that do not have direct objects, one with a stimulus subject, the other with an experiencer subject:

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[3] That's the paint in *John painted a picture*, which is distinct from the one in *John painted the door*.

(107) a. The soldiers rejoiced about the victory.
(also, *marvel about, cheer at, care for, hurt from, delight in, approve of, grieve over, react to*).

b. This painting appealed to Mary.
(also *niggle at, grate on, matter to*)

A broader survey of experiencer/stimulus verbs would have to include verbs of **perception**. These verbs typically are experiencer-subject (Levin has (a) *see* verbs like *feel, hear, smell, taste, notice*, (b) *sight* verbs with a more limited range of complement types like *discover, examine, inspect, perceive, scan, scent, watch*) and (c) *peer* verbs that express the stimulus obliquely or not at all, like *glance, listen, look, sniff, stare*). But there is also a small class of intransitive stimulus-subject perception verbs (*feel, look, smell, sound, taste*), derived from experiencer-subject verbs (except *sound*). Verbs expressing propositional attitudes, like *know*, *believe*, *doubt* are more distant relatives.

7.5.2 Causative and Agentive Stimulus-Subject Verbs

Croft (1991) p. 215 observes that stimulus-subject verbs often occur in a non-stative reading in which they describe the coming about of the perception and the consequent emotional or cognitive reaction. These verbs occur in the progressive (even though they often express punctual changes, which disfavors the progressive). Experiencer-subject verbs, on the other hand, appear to be always stative.

(108) a. The storm was frightening the people.
b. The clown was amusing the children.
c. The cat was teasing the dog.

(109) a. *The people were fearing the storm.
b. *The children were liking the clown.
c. *The cat was detesting the dog.

Also, the following distribution is predicted, as *see* subcategorizes for (visible) events:

(110) a. Mary saw the clown frighten / amuse / tease the children.
b. *Mary saw the people fear / like / detest the clown.

But the non-stative reading cannot be easily obtained for all stimulus-subject verbs:

(111) a. ?The weather was pleasing us.
b. *These news aren't concerning us.
c. *The situation was depressing Mary.

(112) *John saw the situation depress Mary.

Grimshaw (1990) called verbs like *frighten, amuse, tease* **agentive** stimulus-subject verbs, as with them the stimulus seems to express a cause of a psychological state of the experiencer. But this is presumably not so much a well-defined verb class, but rather a pattern in that accomodates some stimulus-subject verbs better than other. For even verbs like *frighten* can be used in a non-agentive way.

As for agentive stimulus-subject verbs, notice that they cannot simply be analyzed as causatives as they do not undergo causative alternation. It appears that causation by a stimulus directed to an experiencer does not qualify as "real" causation.

(113) a. Someone broke this glass. / This glass broke.
b. Someone frightened John. / *John frightened.

But Croft points out that stimulus-subject verbs in languages in some languages (Lakhota, Nahuatl) are often marked as causatives.

7.5.3 Factors for Stimulus-Subject vs. Experiencer-Subject

Both experiencer-subject verbs and stimulus-subject verbs could be analyzed as involving the same thematic roles, experiencer and stimulus. The question arises why we find two distinct grammatical patterns. In the theory of Dowty (1991), the existence of two syntactic frames of psych verbs (stimulus-subject and experiencer-subject) can be explained by conflicting mapping criteria:

- The experiencer must have some **perception** of the stimulus, which is a proto-agent property for the experiencer.
- The stimulus **causes** some reaction in the experiencer, which is a proto-agent property for the stimulus.

In this situation Dowty's linking rules can go either way, and may be idiosyncratic for different verbs. But at least with the agentive stimulus verbs there is another factor that tips the balance, as causing a change is a proto-agent property:

- If the verb expresses a change of the state of the experiencer by the stimulus, the stimulus has an additional proto-agent property (and will be realized as a subject).

An additional factor was identified by Wechsler (1995), who observes that there is an important difference between stimulus-subject verbs and experiencer-subject verbs:

(114) a. As manager of Macy's department store, John has managed to please thousands of customers over the years. Most of them do not even know that John exists.
b. Thousands of customers like John. *Most of them do not even know he exists.

(115) a. Melvin hid behind the tree and made eery sounds, which fooled the tourists into thinking the house was haunted. In this way, Melvin frightened the tourists.
b. (…) *In this way, the tourists feared Melvin.

These examples show that the referent of the experiencer in experiencer-subject verbs (*like, fear*) must know that the referent of the stimulus exists, or more correctly, must have a **notion** of the stimulus. With stimulus-subject verbs this is not necessary. Of course, experiencer always have a "notion" of all stimuli that they experience, so the notion of "notion" that is relevant here can rather be described as knowing the entity that caused the experience. Notion is a proto-agent property:

- If the verb comes with an entailment that the experiencer has a notion of the stimulus, the experiencer has an additional proto-agent property (and will be realized as subject).

But there are two exceptions to this rule, namely *concern* and *preoccupy*. For these stimulus-subject verbs the experiencer must have a notion of the stimulus:

(116) *Toxic waste concerns the senator deeply - he just happens to be unaware of its existence.

Having a notion is a proto-agent property in general. For example,

(117) Fido is chasing Felix. (Fido has a notion of Felix; Felix need not have a notion of Fido).

Another possible criterion: Levin observes that experiencer-subject verbs can be classified in verbs expressing positive experiences and negative experiences. That is, it is expressed that the experiencer gives an evaluation of the stimulus. This evaluative component can also be seen as a proto-agent property that tips the scale towards a realization of experiencers as subjects.

7.5.4   Properties of Stimulus-Subject Verbs

Stimulus-subject verbs have a number of remarkable properties.

- They resist reciprocals (this holds for non-agentive stimulus-subject verbs):

(118) a. $^?$ Politicians depress / worry each other.
    b. Politicians fear / admire each other.
    c. The clowns were frightening each other.

Grimshaw explains this as follows: The subject argument of non-agentive stimulus-subject verbs is not of type e but of some property-like type, which results in a type mismatch with the reciprocal. If the subject is of type e, it often appears to be coerced into a property-like interpretation, which is quite different from agentive subjects.

(119) a. John/John's behavior worries me.
    b. He/What he does bothers me.

(120) John/*Johns behavior murdered him.

With stimulus-subject verbs that allow for an agentive and a non-agentive interpretation we find that reciprocals enforce the agentive reading:

(121) a. The children entertained us. [ambiguous: agentive or non-agentive]
    b. The children entertained each other. [not ambiguous, only agentive]

Belletti & Rizzi (1988) observe that stimulus-subject verbs in Italian cannot be reflexive (b), in contrast to experiencer-subject verbs (a). In general, derived subjects cannot bind reflexives (c), and so they argue that stimulus subjects are derived.

(122) a. Gianni si teme. 'Gianni fears himself.'
    b. *Gianni si preoccupa. '?Gianni worries himself.'
    c. *Gianni si è stato affidato. 'Gianni was entrusted to himself.'

- Stimulus-subject verbs are peculiar in their binding properties. We find violations of the binding principle for anaphors with stimulus-subject verbs. Essentially, the object can bind anaphors within the subject (cf. Giorgi (1984)):

(123) a. Pictures of each other amuse the politicians.
    b. *Spouses of each other admire the politicians.

Belletti & Rizzi and Grimshaw argue that this suggests that stimulus subjects aren't external arguments. Hence stimulus-subject verbs correspond to unaccusatives for intransitives. The object has some properties that are normally reserved for subjects, e.g. that they can be antecedents for certain anaphors.

- The object NP can scope over the subject NP more easily in stimulus-subject verbs. This is particularly clear with the interaction of quantified NPs and *wh*-elements (cf. Kim & Larson (1989)).

(124) a. What did everyone bring?   'For every person x: what did x bring?'
    b. Who brought everything?   *'For every thing x: what did x bring?'

(125) a. What worries everyone?   'For every person x: what worries x?'
    b. What excites everyone?   'For every person x: what excites x?'
    c. *Who does everything worry?
    d. *Who does everything excite?

In languages in which scopal relations follow surface structure, we find scope inversion with psych verbs (cf. Kim & Larson (1989) for Korean, Frey (1990) for German). Again, this suggests that the subject of these verbs is realized "lower" than ordinary subjects of transitives.

(126) a. Nwukwunka-ka nwukwuna-lul chotayhay-ss-ta.
    someone-NOM everyone-ACC invited
    'someone invited everyone'
    b. Mwuenka-ka nwukwu-eykey-na hwuhoyslep-ta.
    something-NOM everyone-DAT be regrettable
    a. 'Everyone regrets something or other.'
    b. 'There is something that everyone regrets.'

(127) a. Ein Student hat jeden Roman gelesen.
    one student.NOM AUX every novel.ACC read
    'One student read every novel.' (under neutral accent pattern)
    b. Ein Roman hat jedem Studenten gefallen.
    one novel.NOM AUX every student.DAT pleased
    a. 'Every student was pleased by one novel.'
    b. 'One novel pleased every student.'

7.5.5   Psych Verbs in Typological Perspective

We have seen that verbs that express a relation between a stimulus and an experiencer can realize their arguments in one of the following ways:

(128) a. Experiencer   Subject, Stimulus   Object
    b. Stimulus   Subject, Experiencer   Object

We have seen that with stimulus-subject verbs the "subject" has fewer subject properties, and the "object" has more subject properties, than with normal agentive transitive verbs, reflecting the fact that general mapping criteria (e.g., Dowty's proto-role properties) often are in conflict with each other. We generally don't find such peculiar properties with experiencer-subject verbs.[4] This suggests that the experiencer-subject pattern is the basic one, and that the stimulus-subject pattern consists in assigning certain subject properties to the stimulus, and perhaps also certain object properties to the experiencer. For English, this concerns verb agreement, case marking and syntactic position: The stimulus agrees with the verb and is in nominative case, the experiencer is realized in the complement positon of the verb and is in objective case:

(129) a. He likes/hates/fears/admires her.
    b. She pleases/disgusts/frightens/amazes him.

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[4] One potential problem is why there are considerably fewer experiencer-subject verbs (Levin's *admire* class) than stimulus-subject verbs (Levin's *amuse* verbs). But notice that transitive perception verbs generally are experiencer-subject.

But we have seen that the experiencer retains subject features in this change (e.g., certain binding properties). So we should not really use the term "stimulus-subject" for those cases, as the stimulus is not a full-fledged subject. Let me call this class **un-nominative** (that is, these verbs cannot assign nominative case to the experiencer).

We find such differences in the realization of psych-verbs in many languages. One common pattern in languages with a richer case system is that the experiencer is marked as **dative**, and the stimulus as nominative (cf. Latin, Italian, German):

(130) Non placet Antonio meus consulatus.
NEG please Antonio.DAT my.NOM consulship.NOM
'My consulship doesn't please Antonius.'

(131) A Gianni piace questo. / Questo piace a Gianni. (either order, cf. Belletti & Rizzi (1988))
to Gianni pleases this
'This pleases Gianni.'

(132) weil dem Studenten der Roman gefällt / weil der Roman dem Studenten gefällt
because the.DAT student.DAT the.NOM novel.NOM pleases
'because the novel pleases the student'

The dative is the case used to express the recipient for verbs like 'give'. For many psych verbs, the experiencer role fits better to recipients than to patients or themes: The experiencer "receives" the impression from a stimulus, rather than being "changed" by the stimulus. But notice that the experiencer retains some "subject" properties. For example, for German one basic order of arguments for these verbs is Dative – Nominative – Verb, which contrasts with the basic order for verbs like *helfen* 'help' that govern the same cases:

(133) weil der Student dem Professor hilft / ?weil dem Professor der Student hilft
because the.NOM student the.DAT professor helps
'because the student helps the professor'

Hook (1990) mentions cases in which the dative of psych verbs agrees with the verb just like subjects (language: Shina of Skardu, Indo-Aryan).

(134) mo-re a ci$ paS-emus
me-DAT that mountain.NOM see-**MASC.1SG**.PRES
'I see that mountain.'

The fact that experiencers are frequently marked by dative case suggests the term **un-dative** for verbs that we called "experiencer-subject" verbs, e.g. *like, admire*.

It is an interesting (and still largely unresearched) issue which verb meanings occur in which pattern. In many languages, psych-verb meanings that are regular in English are un-nominatives, cf. e.g. 'like' in Hindi (cf. Verma & Mohanan (1990)).

(135) siita-ko raam pasand hai
Sita-DAT Ram.NOM liking is
'Sita likes Ram.'

But the verb meaning 'know' is realized like in English in Hindi. In contrast, 'know' as an un-nominative in Malayalam (but notice that the "stimulus" is in the accusative):

(136) a. jon bil-ko jaantaa hai
John.NOM Bill.DAT knowing is
'John knows Bill.'

b. joonine billine ariyaam.
John.DAT Bill.ACC knows
'John knows Bill.'

For English, the classification of psych verbs appears to follow Wechsler's "notion" property and Dowy's change-of-state rule. It remains to be investigated which other properties can be relevant for this classification in other languages. This investigation should include perception verbs.

Also, notice that psych verbs occur in other patterns than the ones discussed so far. For example, we find a reflexive alternation in German for stimulus-subject verbs:

(137) a. Der Junge ärgert den Mann.
the.NOM boy annoys the.ACC man   'The boy angers the man'
b. Der Mann ärgert sich (über den Jungen).
the.NOM man annoys REFL about the boy   'The man is annoyed with the boy.'

(138) a. Der Film langweilt den Jungen.
the.NOM movie bores the.ACC boy   'The movie bores the boy.'
b. Der Junge langweilt sich (mit dem Film).
the.NOM boy bores REFL with the movie   'The boy is bored by the movie.'

The reflexive form can be seen as motivated by the fact that experiencers have both proto-agent properties (motivating a realization as subject) and proto-patient properties (motivating a realization as object). The stimulus argument is not obligatory in these constructions. Similar behavior for *änstigen* 'frighten', *aufregen* 'excite', *freuen* 'please', *interessieren* 'interest' etc.

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