

VERBS OF TRANSFER OF POSSESSION IN FRAMENET^{1*}

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Abstract. The paper focuses on the presentation in FrameNet of the predicates describing transfer of possession, with an overview of their semantics and the realization of their arguments. The descriptive part will be followed by an attempt at classifying the frames and a case study on the realization of core and non-core frame elements with prototypical verbs for commercial transfer of possession with a focus on the recipient-like elements.

Keywords: *semantics, frame semantics, possession verbs, transfer of possession*

1. Introduction

The concept of possession as realized in different forms and on different language levels, has long been studied in linguistics (for in-depth discussions, cf. Heine 1997; Herslund et al. 2001). Possession covers a wide range of meanings and relations such as alienable possession, inalienable possession, ownership (temporary or permanent), possession of inherent or non-inherent characteristics of an object, among others. Possession can be lexicalized (in the so-called verbs of possession, for example) but can also be inferred from a particular construction (be it nominal, or predicative).

The paper gives an overview of the presentation in FrameNet of verbs of possession (covering the predicates classified under the verb.possession semantic prime in WordNet) in section 2, with further division into classes which may be distinguished on the basis of the number and nature of the frame elements (or participants in the described situation). The focus on the Possessor(s) which are present in most frames will be discussed in the context of a case study on verbs of commercial transfer of possession based on a set of examples extracted from a corpus in section 3.

1.1. The resource

FrameNet is a syntactic-semantic resource which was built following the theory of Frame semantics as developed by Charles Fillmore (Fillmore 1976, 1982; Fillmore, Baker 2001). In this framework, the meaning of a word is constructed by the meanings of the fragments that are part of the so-called frame which describes a referent situation as a series of related events including the group of participants in these events. Thus, the meaning of a word contains information about: the situation that it describes, which also involves the participants and the relations between them; and the circumstances in which they can be activated (where, when, how, why, by what, etc.). Semantic frames are attributed not only to verbs but to other parts of speech as well since they also may be interpreted as describing situations.

Verb frames closely resemble predicate-argument structures but have a more detailed description with a thorough list of core and non-core participants (called frame elements) and the possible words / classes they can be expressed by. Non-obligatory participants (expressing manner, location, time, etc.) can also be found among the core elements if they are required for the interpretation of the meaning. For example, the frame **Perception experience** has core frame elements **Perceiver**, **Phenomenon** and **Body part**, with the last being an implicit but obligatory participant to represent the meaning of the verbs of perception such as *hear, see, smell, taste*, among others.

Frame elements often correspond to semantic roles, i.e., they represent generalizations over participants sharing similar properties, semantic content, and syntactic realization. They may have the same level of

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abstraction or differ in granularity (for example, an **Agent** may be further specified as **Creator, Communicator, Speaker, Cook**, etc.; a **Theme** may be described as **Goods, Sum, Animal, Phenomenon**, etc.).

The verbs of possession are also included in another resource – WordNet (Princeton WordNet, cf. Miller 1995; Fellbaum 1998), which is a lexical-semantic database organized through semantic relations between open class words (nouns, verbs, adjectives, and adverbs) including synonymy, hyponymy, and meronymy. Synonyms are grouped into synonym sets (synsets) with short definitions, relations to other synsets (such as hypernymy – hyponymy, holonymy – meronymy, etc.), and usage examples. Nouns and verbs are further classified into 25 and 15 classes, respectively (such as noun.person, noun.animal, noun.plant, noun.artifact, noun.location, etc.; and verb.act, verb.emotion, verb.contact, verb.consumption, verb.possession, etc.).

1.2. Object of the study

Verbs of possession have been the object of numerous studies (cf. Levin 1993, 2008; Rappaport Hovav, Levin 2008, among others) with much more attention given to the concept of possession, as pointed out above, and the levels of its representation in the language (for a comprehensive overview, cf. Baron, Herslund 2001; Herslund et al. 2001).

This paper, however, will attempt at giving an overview of the way of representation of verbs of possession in FrameNet while further subclassifying them into verbs of stative possession (or of having, *have*-verbs) and verbs of transfer of possession (or of giving, *give*-verbs), and additional subclasses will be formulated with implicit participants (non-core elements).

2. Possession in FrameNet

In FrameNet, the semantic frames which involve *possession*, may mention it at different levels: in the definition as with the frame **Borrowing** ‘The **Borrower** takes possession of a **Theme** with the knowledge that the **Borrower** will have to give the **Theme** back to the **Lender** after a **Duration of time**. (...)’, or among the core (mostly) elements (possessive non-core elements are usually excluded as the possession is realized within the noun phrase, i.e., it will be among the elements of the noun frames) as for the frame element **Possession** with the definition ‘The thing which is owned by the **Owner**’.

Verbs of possession can be further classified into stative (*have*-verbs) and active verbs (verbs for transfer of possession such as *give, buy, sell*, etc.), which are assigned the prime verb.possession in WordNet. In the following, we will group verbs into stative and active classes (and subclasses within the class of active verbs) to further describe the roles of the possessors as the participants in the situations that are most relevant to the way of expressing possession.

2.1. Stative verbs of possession – *have*-verbs

The main verb frame **Possession** has a definition of ‘An **Owner** has (or lacks) a **Possession**’, with core elements **Owner** and **Possession** without any semantic restrictions (such as animate, sentient, human, etc. which are found with other elements in other frames), and non-core elements **Depictive, Duration, Explanation, Manner, and Time**. Under the frame **Possession** one finds verbs such as *belong, got, have got, have, lack, own, possess, want*.

The *have*-verbs – exemplified by the main verb frame **Possession** – are stative and obligatorily have two frame elements – **Owner** or **Agent** and **Possession** or **Theme**. The **Storing** frame activating verbs such as *cache, cellar, keep, stock, store, warehouse*, has an additional **Location** element which encodes the location where the **Theme** is kept and can be either inanimate or animate.

1. **Possession: Owner, Possession**²

Retaining: Agent, Theme

Storing: Agent, Theme, Location

However, the core elements here do not help in differentiating between stative and active possession as the **Agent** element does imply both an intentional actor and a recipient of the product of the action (which is not obligatorily the result of their intentional activity).

² Only the core frame elements are given in this section.

2.2. Active verbs of (transfer) of possession

Predicates that explicitly denote transfer of possession are transitive and can be ditransitive (in most cases as there is a transfer of a possessee between the so-called “old” possessor and the so-called “new” possessor, as termed by Pinker (1989: 48) in these situations) but also monotransitive (which, however, may involve an implicit source or goal (or the “old” possessor – which means that the situation again involves two possessor-like participants).

(i) Ditransitive predicates denote an action of transfer (or change) of possession (Rappaport Hovav, Levin 2008) of the **Theme** (most often possessee) from the (presumptive) possessor (called **Giver**; which can be considered the “old” possessor) to the **Recipient** which can be considered the “new” possessor (see Pinker 1989: 48; also Pylkkänen 2008: 15). These are verbs that encode a motion and imply a directed transfer (as in *sent, give, transfer*) or a commercial transfer (as in *buy, sell, lend, borrow*).

(ii) Monotransitive predicates may further introduce a (non-compulsory) beneficiary into the situation, with additional expression of the transfer of possession (as in *I bought the bag for Ivan* where the prepositional phrase denotes a goal, including a spatial goal).

In FrameNet, most of these verbs have a recipient-like element among their core frame elements (it can be named **Recipient**, but also **Mass recipient, Potential recipient, Borrower, Buyer**, etc., most of which are, in fact, subtypes of the **Recipient**).

Motion is an additional component in the semantics of the transfer of possession verbs: according to B. Levin and M. Rappaport Hovav (Levin 2008; Rappaport Hovav, Levin 2008) all dative verbs cause motion but also cause possession (as evident in the double object constructions). Thus, the verbs of transfer of possession can be further subclassified, as proposed below.

2.2.1. *lose*-verbs

The *lose*-verbs may involve an implicit motion which, however, is not always activated by the frame. While the **Recipient** element is included among the core elements of the **Lose possession** frame (defined as ‘Subframe of **Transfer** in which the **Donor** begins by possessing a **Theme** and finishes by not possessing the **Theme**’) which is inherited by the **Giving** frame, the frame **Losing** for verbs such as *lose* and *misplace*, has core frame elements of **Owner** and **Possession** but not the explicitly expressed entity which something/somebody was lost to (here, only situational non-core elements such as **Explanation, Means, Place, Time**, are found but not elements such as **Goal, Recipient**, etc.). Among the non-core elements of the frame **Earnings and losses** a potential source is not found although it would be the **Buyer** which is among its non-core participants.

2. Losing: Owner, Possession

Lose possession: Donor, Recipient, Theme

Earnings and losses: Earner, Earnings

Thus, the *lose*-verbs may not imply the existence of a “new” possessor (with the **Losing** frame) but also the element **Donor** is not explicitly and directly related to a possessor (such as the elements **Owner** and **Possessor**³) but the respective entities are linked through the definitions of the frames they participate in.

2.2.2. *give*-verbs

The verb *give* is the canonical dative alternation verb (Levin 1993, 2008; Levin, Rappaport Hovav 2005; Rappaport Hovav, Levin 2008) which, however, denotes only causation of possession. *Give*-verbs lexicalize the so-called “caused” possession and thus, lexically select a recipient. These are called verbs of future having such as *assign, give, lend, loan, offer, promise, rent, sell, award, bequeath*, etc. In FrameNet,

³ These elements are part of the following hierarchies:

(Container possessor | Decorated individual) -> Possessor -> Entity -> Top

(Lender | Original Owner | Proprietor) -> Owner -> Entity -> Top

(Offerer | Submitter | Supplier | Surrendered) -> Donor -> Person -> Entity -> Top

these are ditransitive predicates with a **Theme (Theme, Asset)**, a **Source (Donor, Offerer, Agent)** and a **Goal participant** which can be either human and animate or non-human and inanimate (**Recipient, Benefit**), as exemplified in the frames in (3).

- 3. **Giving: Donor, Recipient, Theme**
- Offering: Offerer, Potential recipient, Theme**
- Placing: Agent, Cause, Goal, Theme**
- Sacrificing for: Agent, Asset, Benefit**

There are also a set of commercial *give*-verbs whose frames in FrameNet also involve a **Theme (Goods)**, a **Source (Buyer, Perpetrator)** and a **Goal (Seller, Source, Victim)** plus additional manner and condition non-core frame elements.

- 4. **Commerce collect: Buyer (Semantic Type = Source), Goods, Money, Rate, Seller**
- Commerce pay: Buyer, Goods, Money, Rate, Seller**
- Commerce sell: Buyer, Goods, Seller**
- Theft: Goods, Perpetrator, Source, Victim**
- Robbery: Goods, Perpetrator, Source**
- Smuggling: Goal, Goods, Path, Perpetrator, Source**

In addition, there are frames for some monotransitive predicates which only encode manner (or purpose, reason) for the act of giving, such as *fund* and *fine*.

- 5. **Funding: Imposed purpose, Recipient, Supplier**
- Fining: Fine, Payer, Reason, Speaker**

2.2.3. *take/get*-verbs

Take-verbs are motion verbs that may have a **Source** (which can be a person but also an institution or any person-like entity, as well as a location, etc.). Two or three arguments are found as core elements in their semantic frames – a **Theme**, a Source-like element (such as **Source, Donor, Surrender, Lender/Borrower, Lessor**) and a Recipient-like element (such as **Recipient, Agent, Borrower/Lender, Lessee**). The semantic frames **Getting** and **Amassing** do not involve explicit **Source**, though.

- 6. **Getting: Recipient, Theme**
- Amassing: Mass theme, Recipient**
- Receiving: Donor, Recipient, Theme**
- Taking: Agent, Source, Theme**
- Surrendering possession: Recipient, Surrender, Theme**
- Borrowing: Borrower, Lender, Theme**

As with *give*-verbs, there is also a subclass of commercial *take*-verbs under the frames such as **Lending** with core participants **Borrower, Lender, Theme**, and **Renting out** with core participants **Goods, Lessee, Lessor**.

2.2.4. *send*-verbs

With respect to the transfer of possession situation, *send*-verbs lexicalize caused motion which may (but also may not) presuppose caused possession, and thus, lexically select a path which may include an endpoint or a spatial goal. Thus, they basically encode changing of location with an additional element of an intended direction. These are verbs such as *forward*, *hand*, *mail*, *send*, *ship*, etc., with complex frames which usually involve some kind of manner (or means of transportation encoded under the elements **Transport means, Carrier, Transferors**).

- 7. **Sending: Goal, Recipient, Sender, Theme, Transport means**
- Bringing: Agent, Area, Carrier, Goal, Path, Source, Theme (Area, Goal, Path, Source may exclude each other)**
- Transfer: Donor, Recipient, Theme, Transferors**

Here, we may additionally include the *exchange*-verbs subclass where there is more than one **Theme (Theme, Sum, New/Old)** in the semantic frames, as exemplified in (8).

8. Exchange: Exchanger1, Exchanger2, Exchangers, Theme1, Theme2, Themes
Exchange currency: Money, Money owner, Source currency, Sum1, Sum2, Target currency
Replacing: Agent, New, Old

In fact, all active verbs of possession which imply transfer of possession presuppose the existence of two possessors between which the possessee (theme-like participant) is exchanged (or moved). At least one of the possessors – and it is most often the recipient (or the goal) – is explicitly activated (including with *take*-verbs that do not explicitly state the source of the moved theme), so these verbs are additionally subclassified as motion verbs of the *throw*-type (Levin 2008) which presuppose contact (classified as verb. contact in WordNet).

To illustrate the assumed recipient, in the following section we have observed the realization of the prototypical verbs of commercial transfer of possession in a set of examples.

3. Commercial transfer of possession: a case study

To verify the conditions for transfer of possession verbs, we have made observations on a set of examples extracted from the *Open Subtitles Corpus for English* using the SketchEngine application (Kilgarriff et al. 2014) that were additionally annotated with information about the frame elements (as their arguments and adjuncts). Each set consists of 100 examples (out of 1000 extracted ones). Observations were made on both core and non-core elements, with a particular focus on the realization of the elements encoding the recipient-like participant (such as **Buyer, Shopper, Recipient, Beneficiary**, some of which are among the non-core elements of the respective frames).

3.1. Shop

Shopping: Shopper, Goods

Non-core: Co-participant, Degree, Depictive, Ground, Manner, Means, Outcome, Place, Purpose, Time

In the 100 corpus examples, the element **Goods** is explicitly mentioned in 23 examples (ex. *He comes with me when I shop [for clothes]_{Goods} (...)*; *Tomorrow morning we'll go and shop [everything]_{Goods}*). The most frequent frame element (except for the **Shopper** which can be also interpreted as the recipient) is **Place** – in 35 examples (ex. *I've been shopping [in a junk-store]_{Place}*), followed by **Time** – in 21 examples (ex. *I've been shopping [for 6 hours]_{Time}*), **Co-participant** – in 16 examples (ex. *I very seldom shop [with my husband]_{Co-participant}*), and **Purpose** – in 7 examples (ex. *You are shopping [for the wedding]_{Purpose} already*). Beneficiary element which is different from the **Shopper** and which is not found among the non-core elements of the frame (except, probably, **Purpose**), is explicitly mentioned in 15 examples (ex. *I must shop [for my daughters]_{Purpose/Beneficiary}*).

3.2. Buy

Commerce buy: Buyer, Goods

Non-core: Explanation, Imposed purpose, Manner, Means, Money, Period of iterations, Place, Purpose, Rate, Recipient, Seller, Time, Unit

The two core elements – **Goods** and **Buyer** – are explicitly mentioned in almost all of the 100 collected examples. In this set, however, among non-core frame elements, the most frequent one is **Recipient** (which is explicitly different from the **Buyer**) – in 63 examples (ex. *You invite me here and buy [me]_{Recipient} [a dinner]_{Goods} (...)*), it can be also interpreted as the **Beneficiary**: ex. (...) *we need to buy [Mesaxudi tobacco]_{Goods} [for Dad]_{Recipient}*). Among other non-core elements, the most frequent one is **Money** in 12 examples (ex. *He bought [a tea bowl]_{Goods} [for \$2,000]_{Money} (...)*), while **Place** and **Time** elements are realized in 10 examples each (ex. *They discovered that the phonecard with this number was bought [here in the area]_{Place} [between March and June]_{Time}*). The **Seller**, which could be interpreted as the “old” possessor, is explicitly mentioned in 9 examples (ex. *I bought [this picture]_{Goods} [from Tony Drexler]_{Seller} [to pay for his costs]_{Purpose} (...)*).

3.3. Sell

Commerce sell: **Buyer, Goods, Seller**

Non-core: Back, Explanation, Imposed purpose, Manner, Means, Money, Period of iterations, Place, Purpose, Rate, Relay, Result, Time, Unit

In the 100 corpus examples, two of the core elements – **Seller** and **Goods** – are mentioned in almost all examples, while **Buyer** (which can be interpreted as the recipient-like element) is explicit in 63 examples (ex. (...) *fossil-hunters who made a living selling [these beautiful objects]_{Goods} [to tourists]_{Buyer}*). Among non-core frame elements, the most frequent one is **Money** – in 21 examples (ex. (...) *and I'll sell [him]_{Buyer} [one]_{Goods} [for five pfennigs]_{Money}*), followed by **Place** – in 12 examples (ex. (...) *if I have to buy a tin cup and sell [pencils]_{Goods} [on Broadway]_{Place}*), and **Time** – in 7 examples (ex. *I sold [the wheat]_{Goods} [today]_{Time}*).

3.4. Pay

Commerce pay: **Buyer, Goods, Money, Rate, Seller**

Non-core: Circumstances, Explanation, Frequency, Manner, Means, Place, Purpose, Time, Unit

In the 100 corpus examples with this verb, the **Buyer** (which is the person or entity that pays, presumably for the goods) is explicitly mentioned in almost all the examples. The other frame elements, however, are distributed somehow unevenly: the **Goods** and the **Money** can be implied from the context if not both mentioned (ex. *Otherwise, the Agency shall be paid [50,000 francs]_{Money/Goods} (...); Then, you should at least pay [for gas]_{Goods}*) or the **Money** can be analyzed as the theme of the transfer of payment. The **Seller** which can be interpreted as the recipient of the payment is explicit in 63 examples (ex. *Pay [me]_{Seller} the consultation fee*); however, it is not always explicit what this **Seller** sells (ex. *Martin'll pay [him]_{Seller} an interest on it*). Among non-core frame elements, the most frequent one is **Money**, though – in 17 examples (ex. *You just paid [him]_{Seller} [£1,000]_{Money} [for a week's work]_{Goods}*), followed by **Time** – in 14 examples (ex. *With the condition that we will pay [all the amount]_{Goods} [until noon tomorrow]_{Time}*), and **Purpose** – in 14 examples (ex. (...) *they helped me pay [for college]_{Purpose}*).

3.5. Conclusion

Verbs of commercial transfer of possession whose realization we have observed in a set of corpus examples, often encode the entities or possessors (“old” or “new”) between which this transfer of possession occurs. These entities are observed more often than other non-obligatory elements (for time, place, circumstances). The exception among the observed verbs would be the verb *shop* which refers to the whole situation where the recipient-like element, which is different from the shopper, would be in the beneficiary-like role. However, the same can be true for the buying situation where, however, beneficiaries are expressed much more often (and that is why the **Shopping** frame is related by the **Uses** relation to the **Commerce buy** frame).

The explicit realization of the possessors with these predicates even when they are among the non-core frame elements (as in the case of buying with expressing the future “new” possessor as the beneficiary-like participant), attests for the importance of this role in the situations describing transfer of possession.

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ГЛАГОЛИ ЗА ТРАНСФЕР НА ПРИТЕЖАНИЕ ВЪВ ФРЕЙМНЕТ

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Резюме. Статията разглежда представянето във ФреймНет на предикатите за трансфер на притежание с оглед на семантиката и реализацията на аргументите им. Прегледът на описанието на предикатите е последван от предложение за класификация на фреймовете съобразно типа глаголи, както и от наблюдения върху реализацията на ядрените и неядрените фреймови елементи при няколко основни глагола за комерсиален трансфер на притежание с акцент върху реализацията на елементите, изразяващи реципиента (или бенефициента).

Ключови думи: семантика, фреймова семантика, притежателни глаголи, трансфер на притежание

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