

# On the interpretation of alienable vs. inalienable possession: A psycholinguistic investigation\*

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## *Abstract*

*Oceanic languages typically make a grammatical contrast between expressions of alienable and inalienable possession. Moreover, further distinctions are made in the alienable category but not in the inalienable category. The present research tests the hypothesis that there is a good motivation for such a development in the former case. As English does not have a grammaticalized distinction between alienable and inalienable possession, it provides a good testing ground. Three studies were conducted. In Study 1, participants were asked to write down the first interpretation that came to mind for possessive phrases, some of which contained inherently relational possessums, while others contained possessums that are not inherently relational. Phrases with non-relational possessums elicited a broader range of interpretations and a lower consistency of a given interpretation across possessor modifiers than those with relational possessums. Study 2 demonstrated that users assign a default interpretation to a possessive phrase containing a relational possessum even when another reading is plausible. Study 3, a corpus-based analysis of possessive phrase use, showed that phrases with relational possessums have a narrower range of interpretations than those with other possessums. Taken together, the findings strongly suggest that grammatical distinctions between different types of alienable possession are motivated.*

*Keywords:* Possession, alienable, inalienable, phrase interpretation.

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## 1. Introduction<sup>1</sup>

A feature characteristic of the grammars of Oceanic languages is the existence of multiple types of attributive possessive constructions/possessive noun phrases.<sup>2</sup> Putting aside language-specific exceptions, or apparent exceptions, there is a robust distinction in the expression of alienable and inalienable possession. Furthermore, there are typically further subdivisions in alienable possession but not in inalienable possession.

The purpose of the present study is to investigate the factors that underlie such formal contrasts. It will be argued that the factors are cognitive in nature: there is a good motivation for distinctions within alienable possession, but no such motivation in inalienable possession. For inalienable possession there is a salient type of relation for a given pairing of possessum and possessor, such as part-whole relation or kinship relation.<sup>3</sup> On the other hand, there is often no such salient relation in alienable possession, and so it may be useful to identify the type of relation more closely by means of a dedicated construction. There are also languages that are not Oceanic and languages that are not Austronesian that have distinctions within the category of alienable possession; see Sections 3 and 8. We focus here on Oceanic languages because these are the languages on which we have the most detailed information.

Our research sought to test for the existence of this kind of difference between alienable and inalienable possession. Somewhat surprisingly, perhaps, while we are interested in the possessive systems of Oceanic languages, we studied the interpretation of possessive constructions in English. We did so precisely because English does not make a formal contrast between the two kinds of possession and, thus, allows a test of the claim that the distinction is cognitive in nature. That is, we hypothesized that users will show a difference in their interpretation of alienable and inalienable possessive constructions in English even though the constructions are not grammatically distinguished in the language.<sup>4</sup> We report on two psycholinguistic experiments and one corpus-

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1. The present study is a considerably revised and expanded version of two conference papers. We are grateful to participants at the two conferences for their comments on the papers presented there. We also wish to thank the three anonymous referees for their insightful comments which have led to improvements in the present paper.
  2. The Oceanic languages form a subgroup within Austronesian. They are spoken in Papua New Guinea, Melanesia, Polynesia and Micronesia.
  3. The terms “possessum” and “possessor” are used in two senses here: to designate linguistic units and to designate their referents. Context will make it clear which sense is intended on a given occasion.
  4. What we mean here is that English does not *obligatorily* make a grammatical distinction between inalienable and alienable possession in possessive noun phrases, witness *her face* and *her house*. This does not mean that no morphosyntactic distinctions exist in English, see e.g. Van Valin and LaPolla (1997: 190–192), but the inalienable–alienable contrast is a matter of

based study. To anticipate, our studies support our claim that the existence of multiple subtypes of possessive constructions for alienable possession is motivated in the way mentioned above and that there is no such motivation in inalienable possession.

The paper is structured as follows. In Section 2 we describe the typical pattern of attributive possessive constructions in Oceanic languages, and in Section 3 we discuss the ancestral, Proto-Oceanic system, as reconstructed. Section 4 deals with the relational nature of possessive constructions, that is, with various types of possessum–possessor relations. The next three sections focus on the empirical studies we conducted, Section 5 on an experiment involving elicited interpretations of possessive phrases, Section 6 on an experiment involving the interpretation of a single possessive phrase, and Section 7 on a corpus-based study. Section 8 is a general discussion.

## 2. Oceanic possessive constructions: The typical pattern

The Oceanic group contains 450-odd languages, and, not surprisingly, there is a fair amount of variation in the systems of attributive possessive constructions. At the same time, however, there is a pattern that can be considered typical. The pattern is typical in that it is widespread in Oceanic and is found in different primary subgroups. In this typical pattern there is a basic binary division between *direct* and *indirect* possessive constructions. In the direct possessive type the possessum noun carries a possessive suffix that indexes the possessor. In the indirect possessive type the same set of possessive suffixes indexing the possessor is added not to the possessum noun but to a possessive classifier. Examples (1) and (2) from Manam (Papua New Guinea) illustrate the direct and the indirect constructions, respectively:<sup>5</sup>

Manam

- (1) *tamá-gu*  
father-1SG.POSS  
'my father'  
(Lichtenberk 1983a: 278)

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covert categories, in Whorf's (1945) sense (see Lee [1996] for discussion), unlike what we find in the typical Oceanic pattern (see Section 2). We are grateful to one of the referees for raising the issue of the inalienable–alienable contrast in English.

5. As much as possible, the Leipzig Glossing Rules are followed here. nsg stand for non-singular. For the sake of uniformity, the affixes that index the possessor are labelled "possessive", even if in the description of a given language a different label is used. (In the grammar of Manam the suffixes are called "adnominal" because they have other functions besides indexing the possessor in a possessive construction.)

- (2) *ʔúsi né-gu*  
 loincloth POSS.CLF-1SG.POSS  
 ‘my loincloth’  
 (Lichtenberk 1983a: 294)

In both types of constructions, the possessor may also be expressed by means of a noun phrase, as in (3), also from Manam:

- (3) *nátu síoti né-di*  
 child shirt POSS.CLF-3PL.POSS  
 ‘the children’s shirts’  
 (Lichtenberk 1983a: 294)

To keep the examples in the rest of the paper simple, none of them will have a possessor phrase.

Another characteristic of the typical pattern is the existence of more than one subtype of the indirect possessive construction, distinguished by different possessive classifiers.<sup>6</sup> Thus, besides the classifier *ne* shown in (2) and (3), Manam has the classifier *ʔana*:

- (4) *baŋ ʔaná-gu*  
 taro POSS.CLF-1SG.POSS  
 ‘my taro’ (specifically, taro as my food)  
 (Lichtenberk 1983a: 291)

Possessive classifiers do not classify nouns/types of entities. Rather, they classify the nature of the relation between possessum and possessor, such as possessum as food for possessor, as in (4), or some other kind of relation, as in (2) and (3); and see below for further discussion and examples. For this reason they have also been referred to as “relational classifiers” (Lichtenberk 1983b; Aikhenvald 2000; see also Seiler 1977).

Most languages that have possessive classifiers have more than two. Fijian has three, Lolovoli (Vanuatu) has four, Araki (Vanuatu) has five, Mussau (Papua New Guinea) has (at least) nine, and some of the languages of Micronesia have around 20 or more.

The formal difference between the direct and the indirect possessive construction types is coupled with a semantic/pragmatic difference. While there may be exceptions in individual languages, the general pattern is for the direct

6. Palmer and Brown (2007) have suggested that in some Oceanic languages the so-called “possessive classifiers” are in fact nouns. However, as argued in Lichtenberk (2009a), there is evidence against that kind of analysis. In the present context nothing of importance hinges on whether the elements in question are possessive classifiers or (a subtype of) nouns and they will be treated here as classifiers.

construction to express inalienable possession and for the indirect constructions to express alienable possession. Typically included in the inalienable-possession category are the following relations between possessum and possessor:

- (a) kinship relations and other social/cultural relations; e.g. father (see [1]), spouse, trading partner;
- (b) the possessum is part of the possessor; e.g. head, nose, branch (of tree);
- (c) the possessum is something emanating from the possessor's body; e.g. sweat, smell, voice;
- (d) the possessum is something on the surface of the possessor's body; e.g. tattoo, dirt, clothing (when being worn);
- (e) mental organs, states, products of mental processes; e.g. mind, fear, thought;
- (f) various attributes of possessors, such as name (by which the possessor is known), age, height;
- (g) spatial and temporal relations, such as beside (X is beside "possessor") and after (time after "possessor time", e.g. 'after four days');
- (h) the possessor is a patient or theme or stimulus in a situation, such as a blow received by the possessor or medicine for the possessor.

As far as indirect possessive constructions are concerned, there is typically a general possessive classifier and one or more specific classifiers. The general classifier is used when none of the specific classifiers is applicable. In Manam the general classifier is *ne*; see (2) and (3). The other classifier, *?ana*, seen in (4), is used when the possessum serves as an item of food or drink for the possessor, or is metonymically related to food or drink for the possessor, for example taro, coconut (eaten or drunk), garden (where food is grown) and spoon.

Fijian has, besides a general possessive classifier, two other classifiers. One is used when the possessum serves as an item of food for the possessor, and the other when the possessum serves as an item of drink for the possessor. Included in the drink category are also juicy, "wet" foods that can be sucked, such as oysters (Pawley 1973). Examples (5)–(7) illustrate the food, drink, and general classifiers, respectively:

- (5) *na ke-na uvi*  
ART POSS.CLF-3SG.POSS *yam*  
 'her yam'  
 (Schütz 1985: 450)
- (6) *na me-na iī*  
ART POSS.CLF-3SG.POSS *tea*  
 'his tea'  
 (Schütz 1985: 450)

- (7) *na no-na waqa*  
 ART POSS.CLF-3SG.POSS canoe  
 ‘his canoe’  
 (Schütz 1985: 451)

And Lolovoli has a general possessive classifier, a food classifier, a drink classifier, and a classifier that is used primarily with reference to possessums that are “natural entities” (Hyslop 2001: 178–179) owned by the possessor, such as animals and crops, “some items introduced by Europeans, which can be thought of as having some life-like characteristics attributed to them” (e.g. radios and cars), and “objects of adornment” (e.g. earrings and bracelets). The latter classifier is exemplified in (8):

- (8) *bula-da toa*  
 POSS.CLF-1NSG(INCL).POSS chicken  
 ‘our chicken(s)’  
 (Hyslop 2001: 178)

In some of the Oceanic languages of Micronesia one finds rich systems of possessive classifiers. For example, for Chuukese, Benton (1968) lists over 30 classifiers, but the list is not necessarily complete. Some of the categories are food for journey, food for chewing, planted tree and vehicle. Besides these specific classifiers there is also a general one. (Chuukese also has a large list of numeral classifiers, but the two systems of classifiers operate on different principles: possessum–possessor relation for the possessive classifiers, and concepts such as shape, unit and animacy for the numeral classifiers. It is possible for a possessive classifier and a numeral classifier to co-occur in a noun phrase with the same head noun.)

While some descriptions of Oceanic languages speak of classes of nouns on the basis of the type of possessive construction in which they function as the possessum—inalienable vs. alienable, with subclasses in the alienable category—the prevailing view is that, by and large, the choice of a possessive construction depends on the real-world relation between possessum and possessor: if the possessum is part of the possessor’s body, it is the direct construction that is used; if the possessum is an item of food for the possessor, it is the food (or food/drink) indirect construction that is used, etc. (See Lichtenberk 2009b for recent discussion; but see also Pawley and Sayaba 1990 for detailed discussion of the relational and noun-class analyses with special reference to Wayan, a Western Fijian language.)

A phenomenon that supports the relational view, according to which the choice of a possessive construction is determined (exceptions apart) by the real-world relation between possessum and possessor, is fluidity, the possibility that one and the same noun can occur as the possessum in more than one

type of possessive construction. This kind of fluidity is by no means uncommon and is frequently commented on, and exemplified in, Oceanic grammars. Below are given a number of examples of fluidity from various languages, because the phenomenon will be of importance to subsequent discussion.

Fluidity may involve two or more subtypes of the indirect construction, or the direct construction and one or more subtypes of the indirect construction. In some cases the fluidity is due to polysemy of the possessum noun. For example, it is common in Oceanic languages for a noun that designates a shadow, reflection, picture, photograph of something (the “possessor”) to occur in the direct possessive construction, but when the noun designates a picture/photograph as a physical object that belongs to the possessor it occurs in the indirect possessive construction with the general classifier. This is illustrated in (9) and (10) from Tamambo (Vanuatu):

- (9) *nunu-ku*  
 photo/reflection/picture/shadow-1SG.POSS  
 ‘my photo/reflection/picture/shadow’ (a likeness of me)  
 (Jauncey 1997: 229)
- (10) *no-ku*                      *nunu*  
 POSS.CLF-1SG.POSS    photo/picture  
 ‘my photo(s)/picture(s) that belong(s) to me’  
 (Jauncey 1997: 229)

In Lolovoli, the noun *moli* ‘citrus’, ‘ball’ occurs with the food classifier when the citrus fruit is an item of food for the possessor, with the drink classifier when it designates citrus juice for the possessor to drink, and with the natural-entity classifier when it designates a citrus tree owned by the possessor or a ball, such as one used by the possessor in play; see (11)–(13), respectively:

- (11) *ga-ku*                      *moli*  
 POSS.CLF-1SG.POSS    citrus  
 ‘my orange/pomelo (for me to eat)’  
 (Hyslop 2001: 185)
- (12) *me-ku*                      *moli*  
 POSS.CLF-1SG.POSS    citrus  
 ‘my orange/pomelo juice’  
 (Hyslop 2001: 185)
- (13) *bule-ku*                      *moli*  
 POSS.CLF-1SG.POSS    ball  
 ‘my ball’  
 (Hyslop 2001: 185)

Hyslop does not give a parallel example with *moli* designating a citrus tree, but does say that in such circumstances the classifier *bula/bule* is used.

However, fluidity in possessive constructions does not need to involve polysy of the possessum noun. It is also found when the sense of the possessum noun is constant, but the nature of the relation between possessum and possessor varies. For example, a mango fruit may serve as an item of food for the possessor, as an item of “drink”, or as a commercial item; see (14)–(16), respectively, from Fijian:

- (14) *na ke-na maqo*  
 ART POSS.CLF-3SG.POSS mango  
 ‘his mango for eating (i.e. green mango)’  
 (Pawley 1973: 168)
- (15) *na me-na maqo*  
 ART POSS.CLF-3SG.POSS mango  
 ‘his mango for sucking (i.e. ripe, juicy mango)’  
 (Pawley 1973: 168)
- (16) *na no-na maqo*  
 ART POSS.CLF-3SG.POSS mango  
 ‘his mango (as property, e.g., which he is selling)’  
 (Pawley 1973: 168)

In some languages nouns that designate articles of clothing function as the possessum in more than one type of possessive construction. In Manam the contrast is between the direct possessive construction and the general indirect one:

- (17) *baligó-gu*  
 grass.skirt-1SG.POSS  
 ‘my grass-skirt (when I am wearing it)’  
 (Lichtenberk 1983a: 301)
- (18) *baligo né-gu*  
 grass.skirt POSS.CLF-1SG.POSS  
 ‘my grass-skirt (when I am not wearing it)’  
 (Lichtenberk 1983a: 301)

On the other hand, in Gapapaiwa (Papua New Guinea) the contrast is between two indirect constructions with different classifiers:

- (19) *ka-na gara*  
 POSS.CLF-3SG.POSS clothing  
 ‘her clothing (to wear)’  
 (McGuckin 2002: 304)
- (20) *i-na gara*  
 POSS.CLF-3SG.POSS clothing  
 ‘her clothing (to sell at the market)’  
 (McGuckin 2002: 304)



Finally, here is a set of examples from Araki, showing a four-way contrast that involves four different possessive classifiers. *Ha* is a food classifier; *pula* is used when the possessum is “a valuable possession, of economical interest” to the possessor (François 2002: 99); *cuga* is used “when a set of objects has several possessors . . . ; this classifier generally refers to temporary possessions, such as objects transported by several persons at the same time” (François 2002: 99); and *no* is a general classifier, used to designate “any other relationship between [possessum and possessor], which is neither expressed by other classifiers, nor by direct (inalienable) suffixation” (François 2002: 99).

- (21) *ha-ku*                      *po*  
 POSS.CLF-1SG.POSS    pig  
 ‘my piece of pork (to eat)’  
 (François 2002: 100)
- (22) *pula-ku*                    *po*  
 POSS.CLF-1SG.POSS    pig  
 ‘my pig (I breed)’  
 (François 2002: 100)
- (23) *cuga-ku*                    *po*  
 POSS.CLF-1SG.POSS    pig  
 ‘my pig (I am carrying for s.b. else)’  
 (François 2002: 100)
- (24) *no-ku*                      *po*  
 POSS.CLF-1SG.POSS    pig  
 ‘my pig (I am selling, or offering s.b. for a ceremony)’  
 (François 2002: 100)

### 3. The history of the Oceanic possessive systems

There is a general consensus that Proto-Oceanic had a direct possessive construction, where it was the possessum noun that carried the possessive suffixes indexing the possessor, and (at least) three possessive classifiers used in indirect possessive constructions: a food classifier \*ka, a drink classifier \*m<sup>(w)</sup>a, and a general classifier \*na (see, for example, Lichtenberk 1985, Lynch et al. 2002 and also Pawley 1973).<sup>7</sup> There has been some debate whether “passive possession”, where the possessor entity is affected (e.g. ‘his kick’, that is the kick he received rather than administered) was expressed by means of the indirect construction also used to express food possession or by means of the direct construction. Lynch (2001) concludes it was the latter.

7. Lynch et al. (2002) say that several other forms are reconstructible for the general classifier, but this is of no relevance here.

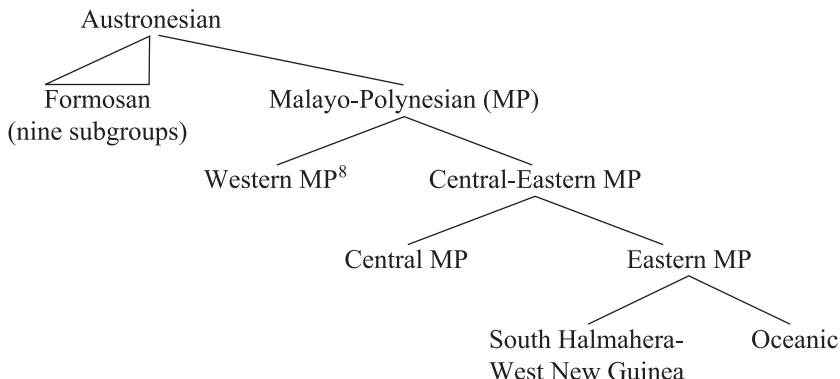


Figure 1. *The position of Oceanic within Austronesian (after Blust 2009)*

Oceanic is a subgroup within Austronesian; see Figure 1.

There is a solid reconstruction of a grammatical distinction in Proto-Oceanic between inalienable and alienable possession, with (at least) three subtypes within the alienable category, distinguished by different classifiers; as mentioned above. Nearly without exception, the Formosan and the Western Malayo-Polynesian languages are characterized by having only one type of possessive construction, without an inalienable–alienable contrast. This was also the case in Proto-Austronesian. Proto-Austronesian only had possessive constructions of the direct type, with possessive suffixes attached to the possessum noun; there was no indirect type.

In the Central Malayo-Polynesian subgroup there are a few languages with a formal inalienable–alienable contrast, with at least one language (Selaru) showing a binary distinction in the alienable category between alimentary (food/drink) possession and all other kinds of alienable possession. And in the South Halmahera–West New Guinea subgroup, the sister group of Oceanic, there are more languages with an inalienable–alienable contrast and an edible/alimentary–other contrast in the alienable category, although there are also languages with only an inalienable–alienable contrast or merely remnants of such a contrast. Van den Berg (2009) reconstructs a system of possessive constructions for Proto-South Halmahera–West New Guinea with a direct construction, where the possessive suffix was attached to the possessum noun, and two subtypes of indirect constructions, where the possessive suffix was attached to a possessive classifier. The direct construction expressed inalienable possession.

8. According to Blust (2009: 30), “[i]t is possible that WMP [Western Malayo-Polynesian] is not a valid group, but rather consists of those languages that do not belong to CEMP [Central-Eastern Malayo-Polynesian]”.

One subtype of the indirect construction expressed food/drink possession and the other one expressed all other kinds of possessum–possessor relations. It is not clear whether the possessive systems in Proto-South Halmahera–West New Guinea and in Proto-Oceanic are the result of independent developments or whether they continue an earlier, Proto-Eastern Malayo-Polynesian system.

There is, however, a general pattern that can be discerned. After an early period in Austronesian with only one basic type of possessive construction, an inalienable–alienable contrast emerged. Two recent studies, Klammer et al. (2008) and Donohue and Schapper (2008), have argued that the presence of the inalienable–alienable contrast in the South Halmahera–West New Guinea and the Oceanic subgroups is the result of contact with Papuan/non-Austronesian languages, where such a contrast is found. For the purposes of the present study it is not relevant whether the emergence of the contrast in Austronesian was or was not indeed due to contact. What is of interest is what happened *after* the emergence of the contrast. At a later time a three-way contrast emerged in the alienable category in Oceanic: food, drink, and other. That is, after the emergence of the inalienable–alienable contrast, further differentiation arose in the alienable category. On the other hand, no further contrasts emerged in the inalienable category.<sup>9</sup>

The central question that this paper addresses is this: why, after the emergence of the inalienable–alienable contrast, did further distinctions develop in the alienable category but not in the inalienable category? Our hypothesis is that there was a good motivation for such a development in alienable possession and that there was no such motivation in inalienable possession. We will use evidence from English to support our hypothesis. English is like early Austronesian in that it does not have a grammaticalized distinction between inalienable and alienable possession (see note 4), and so provides a good testing ground.

However, before we consider the evidence, some general discussion of possessive constructions and the kinds of relations they (may) express is in order.

#### **4. The relational nature of possessive constructions**

Possessive constructions, such as, for example, *Peter's knife*, are relational: there is a relation between two entities, the possessum, here a knife, and the

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9. Some Micronesian languages do have possessive classifiers used with kinship terms. For example, Chuukese has a possessive classifier for 'mother' (Benton 1968) and Kosraean has possessive classifiers for 'mother' and 'wife', for 'father' and 'husband', and three classifiers for 'sibling' (Lee [1975]). However, these are languages with large numbers of classifiers, and the presence of classifiers for kinship relations is clearly an idiosyncratic development in this relatively low-level subgroup within Oceanic.

possessor, here Peter, such that Peter is, or at any rate may be, the owner of the knife. As is well known (see, for example, Barker 1995: 73–74, Langacker 1995: 56–57, and Taylor 1996), besides ownership possessive constructions may encode a variety of other relations between possessums and possessors. For example, *Jane's house* may refer to a house that Jane owns, or to a house in which Jane lives without owning it. However, as discussed further below, not all possessive constructions have this high degree of variability.

The terms “relation” and “relational” have also been used in a different way when it comes to possessive constructions. Certain concepts are inherently relational (see, for example, Seiler 1983, Lehmann 1985,<sup>10</sup> Barker 1995, Partee 1997, and Partee and Borshev 2003, and further references in these works). For example, the concept ‘husband’ by its nature designates a type of relation between two individuals. Similarly, body-part concepts are inherently relational; for example, ‘leg’ designates a part of a whole. It is inherent in the meanings of certain nouns that they are relational. Barker (1995: 52) uses the term “lexical possession”, because as he says “the possession relation comes directly from the lexical relation denoted by the [possessum] noun”. This type of possession has also been called “intrinsic”. When an inherently relational noun functions as the possessum in a possessive construction, the “possessive” relation is normally of the inalienable type. As discussed and demonstrated in Sections 5, 6, and 7, in constructions with inherently relational possessums there is normally a salient, default relation between the possessum and the possessor. The default relation is intrinsic to the meaning of the inherently relational possessum noun.

On the other hand, with possessum nouns that are not inherently relational there is typically no such highly salient relation between the possessum and the possessor, and a variety of relations are freely available. The possessum may be something owned by the possessor (*my car*, the car I own), something controlled by the possessor without the possessor owning it (*my office*, the office I am in charge of), something made use of by the possessor (*my bus*, the bus I will travel on), something produced by the possessor (*my cake*, the cake I made and donated to a fund-raising event), etc. This kind of possession has also been called “extrinsic”. Barker (1995: 53) says that extrinsic possession “depends for its value on pragmatic factors determined by the context in which the possessive is uttered”.

In a similar vein, Taylor (1996) points out that while *John's car*, with a possessum that is not inherently relational, easily permits multiple interpretations (for example, John as the owner of the car, or as the designer of the car), this is not the case with a relational possessum such as, for example, *John's wife*:

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10. We are grateful to one of the referees for bringing Lehmann's study to our attention.

“Such shifting interpretations are not available for *John’s wife*. The expression can only designate the woman related to John by marriage, it could not refer to a married woman who bears some other relation of association to John” (Taylor 1996: 238).

However, this kind of contrast between possessums that are inherently relational and possessums that are not inherently relational is not absolute. Even with inherently relational possessums pragmatic factors may be relevant. As we shall see in Sections 6 and 7, it is possible for such possessive constructions to permit what Taylor calls “shifting interpretations”, although they are relatively rare.

In the next three sections we report on the results of three studies (two interpretation studies and one corpus study) that we conducted using English. The studies examined differences between inherently relational possessums and possessums that are not inherently relational. For convenience, we will from now on use the terms “relational nouns/possessums” and “non-relational nouns/possessums” for nouns/possessums that are and are not inherently relational, respectively.

## 5. Study 1

This study was designed as a psycholinguistic experiment with two major aims. The primary aim was to test whether possessive constructions with relational possessums would yield a narrower range of interpretations than those elicited for constructions with non-relational possessums. We term this “the possessum effect”.

The second aim was to investigate whether the interpretation of possessive constructions may also be influenced by the nature of the possessor. We term this the “possessor effect”. We reasoned that because in alienable possession there is often no highly salient interpretation, the nature of the possessor may well affect the kinds of interpretations offered, more so than in inalienable possession.

We expected to find both possessum and possessor effects. Compare (25a, b) and (26a, b):

- (25) a. the gardener’s face
- b. the cook’s face
- (26) a. the gardener’s vegetables
- b. the cook’s vegetables

With the relational noun *face*, the relation between the possessum and the possessor is constant: the face as part of the gardener’s and the cook’s own bodies. On the other hand, with *vegetables* as the possessum the preferred interpretation varies: the vegetables that the gardener grows vs. the vegetables

that the cook uses. The contrast between the stability and the variation in the possessum–possessor interpretations depending on the nature of the possessum noun ([25] vs. [26]) demonstrates the possessum effect, and the existence of variation with a non-relational possessum (26) demonstrates the possessor effect. We predicted a considerably stronger possessor effect in the interpretation of expressions of alienable possession than in the interpretation of expressions of inalienable possession, because in the latter there is a salient possessum–possessor relation, which is not (necessarily) the case in the former.

Specifically, this experiment tested the following three hypotheses: compared to phrases with relational possessums, those with non-relational possessums would elicit (i) a higher incidence of extrinsic-possession than intrinsic-possession interpretations, (ii) a broader range of interpretations, and (iii) a lower consistency of a given interpretation across modifiers.

### 5.1. *Method*

5.1.1. *Participants.* Seventy-two monolingual English-speaking college students at a large university in the United States participated in the experiment for course credit. There were an equal number of men and women.

5.1.2. *Materials and procedure.* A master list of possessive phrases was used to prepare six counterbalanced stimulus lists each containing 32 English possessive phrases. There were 16 relational and 16 non-relational possessums per list presented in separate blocks with the relational possessum block always presented before the non-relational possessum block. Furthermore, per possessum block eight phrases contained third person singular pronominal modifiers (determiners) and eight contained category name modifiers (lexical possessor phrases) (see Appendix A for a list of the stimuli). Pronominal possessor sets always preceded the noun possessor sets. Thus, each participant was presented with phrases containing relational and non-relational possessums, and with pronominal and nominal modifiers. The particular nominal modifiers presented were counterbalanced across participants.

Twelve participants were randomly assigned to each of the six lists. For each of the 32 phrases, participants were to write down a brief description of the interpretation of the phrase, focusing on the first interpretation that came to mind. Examples were provided and it was emphasized that a simple rewording of the phrase was not sufficient. (See Appendix A for a copy of the instructions.) Participants were allowed as much time as they needed to respond. Only the first interpretation provided was analyzed.

5.1.3. *Coding criteria.* A panel of four judges independently coded each response using a set of 12 categories that specified the nature of the relation

Table 1. *Coding criteria for nature of relationship between possessum and possessor provided in offline judgments: Experiment 1*

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<b>A. Possessum–possessor relations: inalienable possession</b>
1. COMPANION AND/OR KIN
2. PART OF BODY AND/OR BODY DISPLAY
3. EXCRETION AND/OR SECRETION
4. BEHAVIOURAL AND/OR EMOTIONAL STATE OR MANNER
5. PERSONAL DESCRIPTORS AND/OR ATTRIBUTES
6. MEMBERSHIP
<b>B. Possessum–possessor relations: alienable possession</b>
7. OWNERSHIP/POSSESSION
8. EVERYDAY USE/FUNCTIONING
9. CONTROL/COMMAND
10. ACTIVITIES RELATED TO MANIPULATION/HANDLING
11. ACTIVITY LEADING TO MATERIAL OR AESTHETIC PRODUCT
12. EXPERIENCE ON ONE’S OWN (SOLITARY ACTIVITY)

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between the possessor and the possessum (see Table 1 for a list of the categories). The categories were developed and refined on the basis of a pilot study we had carried out. Six of the coding categories (1–6 in Table 1) described intrinsic-possession relations between possessum and possessor and the remaining six (7–12 in the table) described extrinsic-possession relations. Responses that were irrelevant, ambiguous or otherwise uninterpretable were excluded from the analysis. Responses on which there was consensus across three of the four coders were entered into the analysis, as described below.

5.1.4. *Data analysis.* Inter-coder reliability was assessed first. Then, three sets of analyses were performed on the elicited interpretations. The first two tested the possessum effect and the third was directed at testing the possessor effect. Analysis 1, aimed at testing the possessum effect, examined the relative number of inalienable-possession vs. alienable-possession interpretations elicited per possessum type (relational vs. non-relational). Analysis 2, also designed to test the possessum effect, examined the total number of different interpretations elicited as a function of possessum type; this was examined for the pronominal modifier condition only, as this constituted a neutral possessor condition. Analysis 3, designed to examine the possessor effect, examined the relative stability vs. shift in the nature of the interpretations elicited across the two nominal modifier conditions.

## 5.2. *Results*

5.2.1. *Reliability.* Inter-coder reliability was significant as indicated by the Kappa index. Inter-coder agreement across the different possessum and

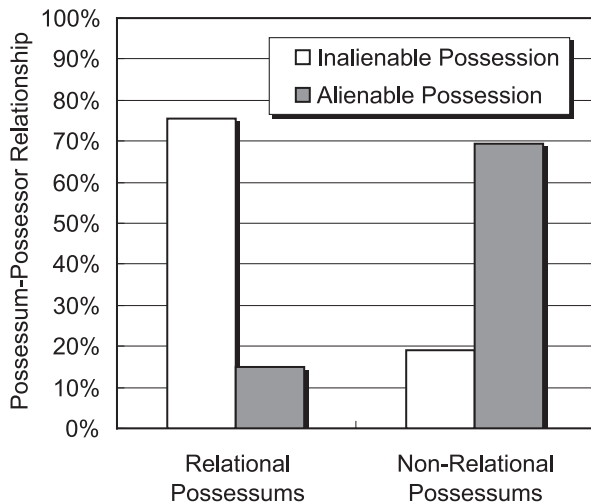


Figure 2. Nature of possessor-possessum interpretation as a function of possessum type

possessor conditions ranged from 66.7% to 86.9%, and the Kappa value across conditions ranged from 0.45 to 0.70 ( $ps < .001$ ).

5.2.2. *Analysis 1: Inalienable vs. alienable interpretations elicited per possessum type.* A logistic regression was performed on the percentages of inalienable-possession vs. alienable-possession types of interpretations elicited for relational vs. non-relational possessums; see Figure 2. A significant possessum effect was found (Wald  $X^2 = 554.14$ ,  $df = 1$ ,  $p < .001$ ), demonstrating that participants were more likely to give an inalienable-possession interpretation to relational than to non-relational possessums. The chance of giving an inalienable-possession type of interpretation over an alienable-possession type of interpretation for relational possessums was 18.4 times greater than that for non-relational possessums (odds ratio = 18.4, 95% CI = 14.4 – 23.4).

5.2.3. *Analysis 2: Range of interpretations elicited by possessum type.* A Poisson regression was conducted for two pronominal-modifier lists to test the number of different interpretations elicited for possessive phrases as a function of possessum type; see Figure 3. The results showed a significant effect of possessum type (odds ratio = 1.48,  $p = .015$ , 95% CI = 2.02 – 1.08), demonstrating that possessive phrases with non-relational possessums elicited 1.48 times greater number of different interpretations than did those with relational possessums. No effect of List was found (odds ratio = 1.06,  $p = .694$ , 95% CI = -1.28 – 1.44), showing that participants did not give significantly different numbers of interpretations for List A and List B.



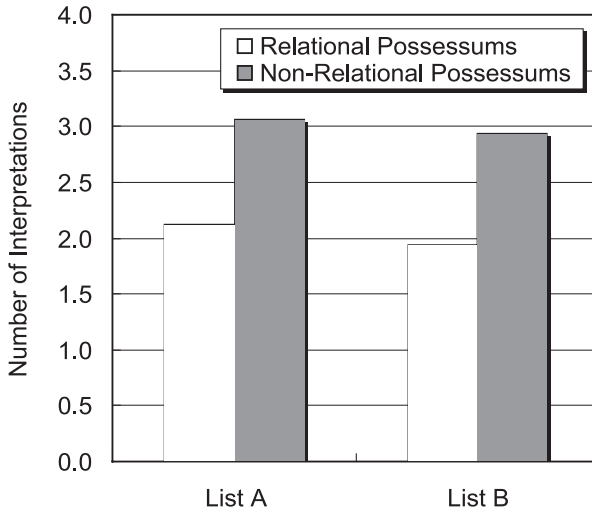


Figure 3. Number of different interpretations elicited for relational vs. non-relational possessums with pronominal modifiers

Importantly, a look at the actual interpretations elicited indicated that, as expected, there was a default, dominant interpretation elicited for phrases containing relational possessums, but no dominant interpretation elicited for phrases containing non-relational possessums.

5.2.4. *Analysis 3. Consistency vs. shift of interpretations by possessum type as a function of change in possessor.* This analysis examined whether the interpretation elicited was influenced by the nature of the possessor (e.g., *the fashion designer's leather jackets* vs. *the con artist's leather jackets*, for non-relational possessums; and *the fashion designer's posture* vs. *the con artist's posture*, for relational possessums). Response consistency was examined by noting the percent of responses that did not vary with a change in the nature of the possessor; see Figure 4. As hypothesized, the consistency of elicited interpretations was higher for phrases containing relational than non-relational possessums (*Mean* = 71.1% vs. 33.6%, respectively,  $t(18) = 7.07, p < .001$ ). Thus, for phrases with non-relational possessums, participants were more likely to change their interpretation of the phrase depending on the nature of the possessor.

### 5.3. Discussion

The results from Study 1 provide evidence both for a possessum effect and for a possessor effect. The former is shown by Analysis 1 and Analysis 2.

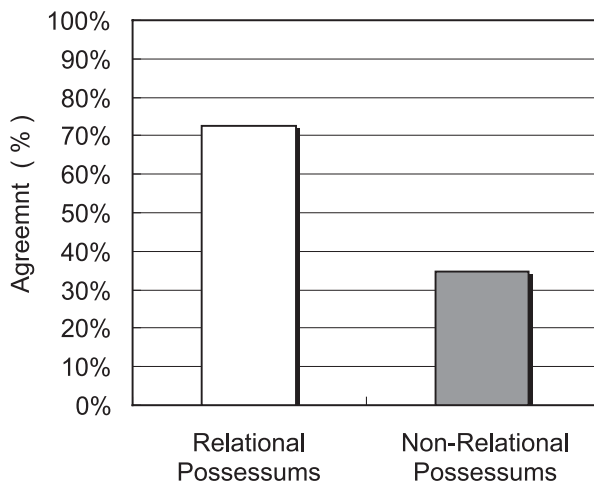


Figure 4. Consistency in interpretation of relational vs. non-relational possessums as a function of change in possessor type

Analysis 1 shows that relational possessums primarily elicited interpretations that invoked an inalienable-possession type of relationship between the possessum and the possessor whereas non-relational possessums primarily elicited alienable-possession types of interpretations. Analysis 2 shows that relational possessums elicited a dominant, default interpretation whereas non-relational possessums elicited a greater number and broader range of interpretations. Evidence for a possessor effect was found in Analysis 3, in that the interpretation of the phrase shifted depending on the nature of the possessor, particularly for non-relational possessums.

## 6. Study 2

Whereas Study 1 examined possessive phrase interpretation in an explicit way by eliciting participants' interpretations of phrases, Study 2 examined possessive phrase interpretation in a more implicit way, by asking participants to provide a context in which an excerpt from a passage would make sense. The excerpt included the critical phrase *the movements of your body*. Participants were to compose a story that would end with the excerpt provided and render it meaningful. Of interest here was whether the favoured reading of the phrase would be the one in which the body is thought to be that of the addressee in the statement, rather than as somebody else's (own) body.

The excerpt was taken from a detective novel, *The body on the beach: A Fethering mystery* (Brett 2000), and the body in question was not the ad-

dressee's own body. It was a human body she had found on the beach and that had subsequently disappeared.

## 6.1. *Method*

6.1.1. *Participants.* Forty native English-speaking college students ranging in age from 18 to 23 years participated in this experiment. None of them had participated in the previous experiment. There were an equal number of males and females.

6.1.2. *Materials and procedure.* Participants were given a response sheet with the following instructions: "Please read the statement below and note what comes to mind. Then write a brief story/scenario (no more than a paragraph or two) that concludes with this statement and renders it meaningful." The statement that participants had to end their story with was as follows: "Let's just think about your body," she/he said. "What we know of the movements of your body." (Brett 2000: 239).

Although the original excerpt from the novel used "she said", we presented half of the participants with an identical excerpt but with the phrase "he said". An equal number of men and women were assigned to each version of the passage.

6.1.3. *Response coding.* The elicited stories were analyzed in terms of the nature of the relationship between the speaker and the addressee as depicted in the passage, and whether the possessor for the critical phrase "your body" was the addressee herself/himself or someone else.

## 6.2. *Results*

Two representative stories (Stories 1 and 2) and one atypical story (Story 3) produced by participants are provided in Appendix B. A content analysis of participants' responses revealed that in all but one case the body in question was assumed to be that of the addressee; only one of the readings of the phrase allowed for an interpretation of "your body" as referring not to the addressee's own body but somebody else's. Specifically, of the 40 elicited interpretations, 27.5% depicted the addressee as a patient and the speaker as a doctor; 27.5% depicted the addressee as a student in a dance class; 17.5% depicted the speaker as a fitness instructor and the addressee as a student; 15% depicted a romantic or sexual relationship between the addressor and the addressee; 10% depicted the addressee as a student in a biology or anatomy class, and 2.5% depicted the addressee as a participant in a psychology experiment.

### 6.3. Discussion

The aim of Study 2 was to probe participants' interpretation of a single possessive phrase containing an inherently relational possessum (*body*) in a more implicit way, by means of a discourse completion task, as compared to the more explicit response required in Study 1. The findings clearly demonstrated that, although six distinct discourse contexts were elicited for the phrase, all of them (with one possible exception) interpreted the body in question to be that of the addressee himself/herself.

The one possible exception is listed in Appendix B (Story 3). This story invoked a 'corpse' meaning of *body* but the way the passage was written it is not entirely clear whether the intended referent of "your body" was the addressee's own body or that of the corpse. At any rate, for 39 of the 40 scenarios produced by participants, the range of meanings provided for "the movements of your body" all fit within an intrinsic-possession reading of the phrase (i.e., the body in question being the addressee's own body). Even though a plausible extrinsic-possession reading was possible (i.e., the body in question being someone else's body that was somehow associated with the addressee), this interpretation was only marginal.

## 7. Study 3

The third study was a corpus-based analysis of usage data for English possessive phrases containing relational vs. non-relational possessums. The hypotheses tested in this study were that (i) relational possessums would exhibit a smaller range of types of possessum–possessor relations than non-relational possessums; and (ii) with relational possessums there would be a salient type of possessum–possessor relation, while there would be no such strong salience with non-relational possessums.

In this study only those possessive phrases were considered where the possessor is expressed by means of a pronominal possessive determiner, such as *her head* or *her house*, not those possessive phrases where the possessor is expressed by means of a lexical phrase, such as *Peter's head* or *Peter's house*. This was done for two reasons. One was to minimize the possessor effect: the determiners do not (fully) identify the (kind of the) possessor. However, even under these conditions the possessor effect cannot be eliminated altogether. Compare *his juice* with a human or at least animate possessor and *its juice* with an inanimate possessor. While with the former the juice may be interpreted as something drunk or owned by the possessor, with the latter it is more likely to be interpreted as part of the possessor, as being contained in the possessor, such as the juice of a fruit. The second reason was practical: it was highly unlikely that enough instances of possessive constructions with identical lexical possessor phrases and identical possessums would be found.

Table 2. Possessum nouns selected for analysis

Set I (relational):	mother, child, spouse, friend, name, body, face, bone, blood, shadow
Set II (non-relational):	fish, vegetable, food, meat, milk, fruit, water, wine, soup, cake, juice, apple, potato

## 7.1. Method

7.1.1. *Materials and procedure.* The British National Corpus was searched for constructions of the type *my/your/his/her/its/our/their X(s)*, where *X* is the possessum noun, singular or plural. A total of 23 possessum nouns were selected for the analysis (see Table 2). Wherever possible, the first 50 randomly selected instances of each noun in a possessive construction were taken, one example per text (to avoid skewing due to the nature of the text). In a few cases there were fewer than 50 instances. For each instance the nature of the possessum–possessor relation was determined (see further below). To determine the type of relation, the broader context in which the construction was embedded was considered.

The possessums chosen for the corpus analysis were classified into two sets: Set I contained relational possessums, and Set II contained nouns that are not (normally) considered relational (but matters turned out to be somewhat more complex, as discussed further below). The memberships of the two sets are given in Table 2.

For each of the 23 possessum nouns, the nature of the relationship between the possessum and the possessor was identified across the first 50 occurrences in the corpus. For some of the nouns (e.g., *mother*), only a single relationship emerged (the possessor’s own mother). Where more than one relationship was present, the relative frequency of the different possessum–possessor relations was analyzed using a chi square analysis.

## 7.2. Results

The results are summarized in Tables 3 (for the relational possessums) and 4 (for the non-relational possessums).

In all 10 cases of the relational possessums, there were salient possessum–possessor relations. In 7 out of the 10 cases, all of the 50 tokens exhibited the salient relations. In the remaining three cases there were single exceptions that deviated from the salient reading. Thus, in the case of the possessum *CHILD* 49 of the instances referred to the possessor’s own child/children and one instance in which it was not the possessor’s own children but where the possessor was a teacher in charge of the children. In the case of *BONE* there was one instance of *your bone* where *your* referred to a dog for which the bone was intended as food (a person saying to the dog, “Here is your bone”); all other instances

Table 3. *Interpretations of possessive phrases across sampled occurrences of relational possessums (Set I)*

interpretation (nature of possessum–possessor relations)	relative frequency of occurrence	chi square	p value
MOTHER			
a) possessor's own mother	50/50		
b) mother of someone other than possessor	0/50		
CHILD			
a) possessor's own child	49/50	46.08	<.001
b) possessor in charge of (someone else's) child	1/50		
SPOUSE			
a) possessor's own spouse	50/50		
b) spouse of someone other than possessor	0/50		
FRIEND			
a) possessor's own friend	50/50		
b) friend of someone other than possessor	0/50		
NAME			
a) possessor's own name	50/50		
b) name of someone other than possessor	0/50		
BODY			
a) possessor's own body	50/50		
b) body of someone other than possessor	0/50		
FACE			
a) face as part of possessor's body	50/50		
b) face of someone other than possessor	0/50		
BONE			
a) bone as part of possessor's body	49/50	46.08	<.001
b) bone as food for possessor	1/50		
BLOOD			
a) blood in possessor's body	50/50		
b) blood not belonging to possessor's body	0/50		
SHADOW			
a) shadow cast by possessor	49/50	46.08	<.001
b) shadow as possessor's location	1/50		

referred to the possessors' own bone(s) as part of their bodies. And in the case of SHADOW there was one instance where *your shadow* referred to the shadow in which the addressee was located ("Come out of your shadow"), whereas 49 instances referred to the possessor's own shadow. While CHILD, BONE and SHADOW are inherently relational, in the exceptional cases the possessive relations were not of the intrinsic type.

The results for Set II, namely non-relational possessums, are given in Table 4. The possessum–possessor relations were divided into four broad categories: possessum as food for possessor, possessum as drink for possessor, part-whole relation and any other kind of relation. This way of coding the results (rather

Table 4. *Interpretations of possessive phrases across sampled occurrences of non-relational possessums (Set II)*

interpretation (nature of possessum–possessor relations)	relative frequency of occurrence	chi square	p value
FISH			
a) fish as possessor's food	20/50		
b) fish as contents of possessor (part of whole)	7/50		
other:			
c) (fish as possessor's commodity, possession; fish as possessor's catch; fish as possessor's product [chocolate fish])	23/50	8.68	.013
VEGETABLE			
a) vegetable as possessor's food	23/31		
b) other	8/31	7.26	.007
FOOD			
a) food as possessor's own food	46/50		
b) other	4/50	35.28	.001
MEAT			
a) meat as possessor's food	29/50		
b) meat as part of possessor's body (part of whole):	16/50		
c) other	5/50	17.32	.001
MILK			
a) milk as possessor's drink	23/50		
b) milk in possessor's body (part of whole)	18/50		
c) other	9/50	6.04	.049
FRUIT			
a) fruit as possessor's food	13/38		
b) fruit as part of possessor (part of whole)	17/38		
c) other	8/38	3.21	.201
WATER			
a) water as possessor's drink:	15/48		
b) water as part of possessor (part of whole):	14/48		
c) other:	19/48	0.88	.646
WINE			
a) wine as possessor's drink	38/50		
b) other	12/50	13.52	.001
SOUP			
a) soup as possessor's food	41/44		
b) other	3/44	32.82	.001
CAKE			
a) cake as possessor's food:	28/40		
b) other:	12/40	6.40	.011
JUICE			
a) juice as possessor's drink	13/23		
b) juice in possessor's body (part of whole)	9/23		
c) other	1/23	9.74	.008
APPLE			
a) apple as possessor's food	11/15		
b) other	4/15	3.27	.071
POTATO			
a) potato as possessor's food	11/15		
b) other	4/15	3.27	.071

Table 5. *Comparison of the relative numbers of Set I and Set II possessums with a salient interpretation*

	number of items with salient interpretation	number of items with no salient interpretation
Set I	10	0
Set II	9	4

Table 6. *Comparison of the numbers of possessum–possessor relations in Set I and Set II*

	1 relation	2 relations	3 relations	total
Set I	7	3	—	10
Set II	—	7	6	13

than the coding used in Study 1) makes the categorization comparable to the Proto-Oceanic system (Section 3) with three indirect possessive constructions with different possessive classifiers, one for food possession, one for drink possession and one for any other kind of alienable possessive relation (“general possession”), and with a direct possessive construction, used, among other things, for part-whole relations. However, for the first item, FISH, the specific contents of the “other” category are shown, to give the reader an idea of the kinds of possessum–possessor relations found there. As evident in the table, for some of the possessum items there were fewer than 50 tokens available.

While in Set I there was a salient interpretation present for all 10 possessums, this was not the case for 4 out of the 13 possessums in Set II: FRUIT, WATER, APPLE and POTATO. This is shown in Table 5.

The difference between Sets I and II is itself significant ( $\chi^2(1) = 3.73$ ,  $p < .05$ ). In other words, there is considerably more variation in the types of possessum–possessor relation in Set II than in Set I. And there is also a marked difference between the two sets with respect to the number of types of possessum–possessor relations, as shown in Table 6.

In Set I seven items had only one type of possessum–possessor relation. Three items had two relations, one of which was always strongly dominant (Table 3). No item had more than two relations. On the other hand, in Set II there was a close-to-even distribution of items with two and three relations, keeping in mind that one of the relations was an “other” category, which subsumes a large number of more specific relations. There was no item with only one relation. Clearly, there is considerably more heterogeneity in the possessum–possessor relations in Set II than in Set I.

As already noted, the items in Set I had a relatively restricted range of possessum–possessor relations, and one type of relation was strongly salient.



Table 7. Comparison of percentages of inalienable possession interpretations of possessums in Set I and Set II

Set I	
MOTHER, SPOUSE, FRIEND, NAME, BODY, FACE, BLOOD	100%
CHILD, BONE, SHADOW	98%
Set II	
FISH	14%
WATER	29.2%
MEAT	32%
MILK	36%
JUICE	39.1%
FRUIT	44.7%

Set I possessums are relational. However, matters are more complicated than that. In Set II (ostensibly non-relational possessums) there were cases of possessum–possessor relations that were of the type otherwise associated with inalienable possession, namely part-whole relations, specifically the contents of something. This was the case with FISH, MEAT, MILK, FRUIT, WATER, and JUICE, e.g. the fish of a river and milk in a woman’s body; see Table 7 (extracted from Tables 3 and Table 4).

Nevertheless, one can see from Table 7 that relations of the inalienable type are strongly dominant in Set I, but not in Set II. And so another conclusion may be drawn: With some nouns inalienable possessive relations are strongly salient. With other nouns, such relations, although easily available, are not (strongly) salient. One would not want to argue that, for example, the noun *fish* is (inherently) relational; still it can function as the possessum in a part-whole relation. On the other hand, the noun *milk* does lend itself more readily to a part-of-whole interpretation. Cases like these show that the distinction between relational and non-relational nouns is not necessarily clear-cut.

## 8. Discussion

As the three studies show, the interpretation of possessive phrases is strongly dependent on the nature of the possessum, specifically, on whether or not the possessum is relational. If it is relational, the interpretations elicited are fewer in number and nearly without exception are of the intrinsic-possession type, even if non-intrinsic-possession interpretations are possible (as was the case for *your body* in Study 2 and for CHILD, BONE and SHADOW in Study 3). If the possessum is not relational, then its interpretation is more subject to the influence of the nature of the possessor; thus, for example, *the architect’s house* may easily be construed as ‘the house that the architect designed’ rather than ‘the house the architect lives in’, whereas *the governor’s house* is more likely to be interpreted as ‘the house in which the governor lives’.

A referee suggests that the sets of nouns that occur in the (indirect) constructions for alienable possession in the Oceanic languages are much larger and semantically more heterogenous than the sets of nouns that (normally) occur in the (direct) construction for inalienable possession and that there is consequently more scope for internal division. While we are in agreement concerning the size of the two sets of nouns, the results of our studies show that the crucial factor is the much higher potential for the members of the larger set to be open to multiple interpretations, what we term the “possessum effect”.

To say that further distinctions are motivated in alienable possession but not in inalienable possession does not, of course, mean that therefore every language is expected to develop in this manner. The existence of a general motivating factor does not necessarily lead to the development of a grammatical (sub)category, whether in possessive constructions or in other grammatical areas. What we do predict, however, is that semantic/pragmatic distinctions are much more likely to develop in the area of alienable possession than in the area of inalienable possession. From a diachronic perspective, we do not expect distinctions to develop in inalienable possession before distinctions develop in alienable possession. As mentioned in note 9, some Micronesian languages have possessive classifiers for some kinship terms. This, however, is a local development in this restricted group of languages, which also have large numbers of possessive classifiers in alienable possession (much larger than what the norm is in Oceanic).

While our point of departure was the Oceanic languages, they are not the only ones with distinctions in alienable possession. As discussed in Section 3, similar distinctions are found in certain other Austronesian languages and in at least one case (Selaru) this was a development independent of that in Oceanic. Farther afield, distinctions within alienable possession but not within inalienable possession are found in some languages of the Americas. For example, Baniwa of Içana (North Arawak, Brazil) makes distinctions in possessive constructions by means of relational (that is possessive) classifiers, “which are used only with alienably possessed nouns” (Aikhenvald 2000: 143). According to Rodrigues (1999: 190), “[m]any languages of the Macro-Jê stock distinguish alienable from inalienable possession. In general, alienable possession is expressed by means of an inalienable generic noun, meaning ‘thing’ or ‘belongings’ or ‘possession’. In some languages there are two or more generic nouns, distinguishing classes of possessable things.” The generic nouns in the Macro-Jê languages are functionally analogous to the possessive classifiers in Oceanic. Kipeá (Brazil; now extinct) had twelve such generic nouns. And as in Oceanic languages, there was some fluidity: In Kipeá, “[a]ccording to the way in which its referent was acquired, a noun may occur with different generic nouns” (Rodrigues 1999: 191). There is no evidence of any distinctions within

inalienable possession. Distinctions within what here is called alienable possession are also found in Cahuilla (Uto-Aztecan, Southern California) (Seiler 1977).<sup>11</sup> Cahuilla has a number of “relational classifiers” used with nouns that designate plants and their edible fruits, meat and animals. It also has a general classifier, used “for all items other than [+Animate]” (Seiler 1977: 300). There are no classifiers used with inherently relational nouns such as kinship terms and body-part terms. And in Cahuilla too there is some fluidity in the relational classifier system.

Our findings from the studies reported on here, taken together, provide strong empirical support for the claim that further grammatical distinctions are motivated for alienable possession and that there is no such motivation for inalienable possession. Further support is provided by the existence of languages with distinctions in alienable possession and no distinctions in inalienable possession, together with the absence of languages with distinctions in inalienable possession but no distinctions in alienable possession.

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## **Appendix A: Instructions and stimuli used in experiment 1**

### *Instructions*

In this study we are interested in how you interpret various kinds of phrases in English. On reading each phrase, please write down on the sheet provided a short description of what the phrase means. For example, for the phrase “the girl’s toys” you could write “the toys that the girl plays with”. Please write legibly.

For some phrases more than one meaning may be possible. Nevertheless, we are interested only in the first meaning that occurs to you.

Also, please make sure your description is clear and unambiguous. For example, for the phrase, “the boy’s ear”—a CLEAR description would be “the ear that is part of the boy’s face” or “the ear attached to the boy’s face”. An UNCLEAR (inadequate) description would be “the ear of the boy” or even “the ear belonging to the boy”.

In general, do not simply restate the phrase (e.g., for “the man’s head” do not say “the head of the man”) but provide an explicit description in enough detail

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11. Seiler does not speak of inalienable and alienable possession categories in his grammar of Cahuilla.

that someone else could easily understand it. Once again, write down only the first meaning of the phrase that comes to mind. If you run out of room you can continue writing on the back of the sheet. Any questions?

### ***List of Possessive Phrases Used***

#### **RELATIONAL POSSESSUMS**

Pronominal	Noun A	Noun B
his children	the politician's children	the superstar's children
her brother	my colleague's brother	the entrepreneur's brother
her name	the student's name	the poet's name
her gestures	the florist's gestures	the performer's gestures
his legs	the soldier's legs	the general's legs
her sweat	the teenager's sweat	the jazz singer's sweat
his birthday	the cobbler's birthday	the dancer's birthday
their habits	my neighbours' habits	the rich couple's habits
his friends	the intellectual's friends	the tycoon's friends
her hairdo	the girl's hairdo	the millionaire's hairdo
her tears	the teacher's tears	my mother's tears
his reputation	the master's reputation	the art enthusiast's reputation
her pet dogs	the farmer's pet dogs	the grocer's pet dogs
their fears	the school children's fears	the dramatists' fears
his family	the minister's family	the villager's family
his posture	the con artist's posture	the fashion designer's posture

#### **NON-RELATIONAL POSSESSUMS**

Pronominal	Noun A	Noun B
his airplane	the politician's airplane	the superstar's airplane
her language school	my colleague's language school	the entrepreneur's language school
her books	the student's books	the poet's books
her bouquet	the florist's bouquet	the performer's bouquet
his regiment	the soldier's regiment	the general's regiment
her CDs	the teenager's CDs	the jazz singer's CDs
his shoes	the cobbler's shoes	the dancer's shoes
their house	my neighbors' house	the rich couple's house
his newspaper	the intellectual's newspaper	the tycoon's newspaper
her basketball team	the girl's basketball team	the millionaire's basketball team
her cookies	the teacher's cookies	my mother's cookies
his paintings	the master's paintings	the art enthusiast's paintings
her tomatoes	the farmer's tomatoes	the grocer's tomatoes
their plays	the schoolchildren's plays	the dramatist's plays
his parish	the minister's parish	the villager's parish
his leather jackets	the con artist's leather jackets	the fashion designer's leather jackets

## **Appendix B: Three sample stories elicited in experiment 2**

### *Story 1:*

After Tom woke up from a shoulder operation, he asked the doctor, “Well, what can I do to prevent any more injuries. She told him what medicine and exercises to use to help him. He then asked if he would be able to use his arm to the fullest ability. “Well, let’s just think about your body,” she said. “What we know of the movements of your body.”

### *Story 2:*

It was my first day to attend dance class at the prestigious New York Dance Academy. I was so nervous I could hardly contain myself. I was trying so hard to impress my instructors that my movements were very mechanical and off beat. I *knew* I was capable of dancing better than I was, so I became very upset. My instructor, Charles, noticed my mood change and pulled me aside. Trying to calm me down and help me truly show my full potential, he said, “Let’s just think about your body, what we know of the movements of your body.”

### *Story 3:*

There was a man who was in a terrible automobile accident. His body was so badly injured that it was decided that his brain should be placed in a new body. The surgery was only a partial success because while the man was alive and conscious, he could not move. So the doctors brought up the corpse and showed the man that it still responded to certain stimuli. “Let’s just think about your body,” he said. “What we know of the movements of your body.”

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