Types of zero complements in French and Spanish prepositional phrases: New evidence from acceptability judgment experiments

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Abstract

Some French prepositions can appear without an overt complement. The discussion about the status of such zero complements (starting with Zribi-Hertz's (1984a, 1984b) seminal work) is still ongoing. More recently, Authier (2016) argued that French prepositions are heterogeneous in this respect: The zero complement of only some prepositions is a null pronoun (e.g., *avec* 'with', but not *pour* 'for'). I aim to take this discussion one step further and scrutinize whether the zero complement of one and the same preposition can have different statuses. To this end I compare zero complements in two contexts: reduced sentences with a contrastive focus on the preposition vs. prepositions in full sentences without contrastive focus on the preposition. Based on data from acceptability judgment experiments, I will show that the zero complements in these two contexts underly different restrictions with respect to animacy and

crosslinguistic distribution (comparing French and Spanish). This suggests two types of zero complements in the case of prepositions like *avec*: null pronouns in non-contrastive contexts, and background deletion in contrastive contexts. Additionally, the data provides novel insights about strong pronouns vs. zero complements in French and Spanish PPs, highlighting different animacy restrictions on zero complements and strong pronouns in the two languages.

Keywords: orphan prepositions, French, Spanish, animacy, empty categories, pronouns.

1. Introduction

In French, (some) prepositions may appear with an overt complement or with a zero complement.[1] Uses with a zero complement, as in (1), have been extensively discussed in the literature under the label *orphan preposition* (Zribi-Hertz 1984a, 1984b; cf. also Authier 2016, Troberg 2020, Therrien 2023 for recent discussions).

(1)   Authier (2016: 236)
        J' aime   bien cette valise. Je voyage toujours avec.
        I like   well this suitcase I travel   always   with
        'I like this suitcase a lot. I always travel with it.'

One recurring topic in the literature is the status of the preposition's zero complement, which has already been addressed by Zribi-Hertz (1984a) in her seminal study. She argues that the zero complement is neither a trace (left behind after movement) nor an elliptical gap. Data such as (2) show the zero complement's insensitivity to syntactic islands and thus rule out an analysis of the zero complement as a trace (and thereby highlight that orphan prepositions must be distinguished from stranded prepositions; cf. also Roberge 2012 and Therrien 2023). Instead, Zribi-Hertz (1984a) has argued that the zero complement is a null pronoun (based amongst others on their similar behavior to overt pronouns concerning binding (Zribi-Hertz 1984a: 23-25)); see also Authier's (2016) arguments below.

(2)   Zribi-Hertz (1984a: 7)
        Cette valise, j'ai   demandé à Jean de dire à Marie que   je voyage
        this suitcase, I have   asked   to John to tell to Marie that   I   travel
        toujours avec.
        always   with
        'This suitcase, I asked Jean to tell Marie that I always travel with it.'

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[1]   *Zero complement* serves as a descriptive term covering the absence of an overt complement, without specifying whether the complement is a deleted element, a null pronoun, a syntactically inactive but semantically/contextually recovered element, etc. In the representation of linguistic data, symbols for zero complements are only given when needed to indicate reference (e.g., in (5)).

Other authors seem to suggest that prepositions without overt complements do not have syntactically active complements: Uses without overt complements are described as adverbial uses of prepositions (TLFi, s. v. *avec*; Dethloff & Wagner 2014: 93; Wilmet 1998: §546; see also Ilinski 2003: 277ff. for an overview), or as absolute uses of prepositions (Borillo 2001: 145; Eluerd 2002: 154).[2]

Gabriel (2002: 41) uses the term *intransitive* prepositions for prepositions without overt complements, which might suggest that he does not assume a syntactically active complement either. His description of the phenomenon shows, however, that he assumes a syntactically active complement which is deleted (Gabriel 2002: 41f.).[3] Similarly, Jones (1996: 386) refers to prepositions with zero complements as *intransitive* and describes them as "highly elliptical". Since Jones (1996: 386) links the "elliptical" nature of these constructions rather to the need to "recover an appropriate complement from the context" than to syntactic representation, it is unclear whether he assumes a syntactically active but deleted complement. The deletion of the complement is described as the "common analysis for this construction" by Kaiser (2012: 241).

One trait shared by all of the above authors seems to be that they assume the same properties for all instances of prepositions with zero complements. Taking a more nuanced stance, Authier (2016) argues that prepositions without overt complements are not a uniform class with respect to the status of the zero complement. Some take a syntactically active null pronoun as a complement (e.g., *avec* 'with'), while others do not (e.g., *pour* 'for'). For *avec*, he shows that the zero complement can be bound by a higher quantificational element. Hence, (3) can be interpreted such that for every occasion on which Marine brings home wild mushrooms, her husband does not cook with these mushrooms (Authier 2016: 241). The zero complement thus has the typical bound variable behavior of overt pronouns, such as *les* 'them' in (4).

(3)   Authier (2016: 240f.)
Quand   Marine ramène   des   champignons sauvages, son   mari
whenever Marine brings-back some mushrooms   wild   her   husband
ne   cuisine jamais avec.
NEG cooks   never   with
'Whenever Marine brings back wild mushrooms, her husband never cooks with them. (them = the mushrooms that Marine brings back on different occasions).'

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[2]   (Directional) verb particles, which superficially resemble prepositions without overt complements, existed at earlier stages of French (Troberg & Leung 2021). These differ, however, from the prepositions with zero complements discussed in this paper in that they do not have an implicit complement.

[3]   Cf. Gabriel's (2002: 41) representation of *la voiture n'est pas devant la maison, elle est derrière* in (i) where the zero complement is present in the syntax (but not overt as it is deleted).

(i)   la   voiture n'est pas   [PP devant [DP la maison]i], elle est [PP derrière [DP la maison]i]
the car   NEG is NEG   in.front.of the house   it is   behind   the house
'The car is not in front of the house, it is behind it.'

(4)   Authier (2016: 241)
        Quand   Marine rapporte   des   champignons sauvages, son mari
        whenever Marine brings-back some mushrooms   wild   her husband
        ne les   fait   pas frire à la   poêle.
        NEG them make not fry   at the frying-pan
        'Whenever Marine brings back wild mushrooms, her husband never pan fries
        them.'

For other prepositions, e.g., *pour* 'for', Authier (2016: 260f.) assumes that the complement position is not filled by a null pronoun (and he considers them to be intransitive). His arguments include, amongst others, the impossibility to license sloppy readings; in (5a), the zero complement of *pour* cannot be interpreted as referring to Sophie's aunt. This separates the zero complement of *pour* from pronominals, which typically allow sloppy readings.[4] However, with the preposition *avec* 'with' zero complements can be ambiguous between a strict and a sloppy reading (cf. (5b)).

(5)   a.   Authier (2016: 261)
                Quand Sylvie$_i$ ne   vote pas pour sa$_i$ tante,   Sophie$_j$ ne   vote pas
                when   Sylvie NEG vote not for   her aunt   Sophie NEG vote not
                pour Ø non plus. [Ø ≠ sa$_j$ tante]
                for   either   her aunt

        b.   Authier (2016: 243)
                Mon mari$_i$ ne   touche   jamais à ses$_i$ outils alors que
                my   husband NEG touches   never   at his   tools whereas
                le tien$_j$ bricole avec Ø toute la   journée.
                the yours tinkers with   all   the day
                (Ø ses$_i$ outils ou ses$_j$ outils)
                (Ø his$_i$ or his$_j$ tools)

It follows from the above that French prepositions form a heterogeneous class with respect to the status of their zero complement. In this paper I aim to take this discussion one step further and scrutinize whether the zero complement of one and the same preposition can have different statuses. Let us compare the uses of *avec* in (1) with the one in (6), where the zero complements of *avec* 'with' appear in quite different syntactic-pragmatic contexts. While (1) is a 'full sentence' without narrow contrastive focus on the preposition, (6) shows a reduced sentence with a narrow contrastive focus on the preposition.

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[4]   The term *sloppy reading* refers to interpretations where in cases of ambiguity an anaphoric element is not interpreted the same way as its antecedent. The formal antecedent of *it* in (i) is the first man's paycheck, and under the strict reading this is indeed the referential antecedent for *it*. Under a sloppy reading, however, *it* refers to the second man's paycheck and the antecedent *his paycheck* thus only provides the type of entity for the reference construal.
(i)   The man$_i$ who gave his$_i$ paycheck to his$_i$ wife was wiser than the man$_j$
         who gave it to his$_j$ mistress. [it = his$_j$ paycheck]

(6)   Gavalda Anna (2004), *Ensemble, c'est tout* ; Frantext, modified
        Ils   revinrent   tous les week-ends. Avec ou sans   Philibert. Plutôt *avec*.
        They came back all   the weekends   with or without Philibert rather with
        'They came back every weekend. With or without Philibert. Rather with
        him.'

        In the following, I thus use the terms *full sentence* vs. *reduced sentence*
irrespective of the nature of the preposition's complement (overt or zero). Instead, the
former involves no elision outside of the PP (as in (1)), while the latter involves elision
of some material outside of the PP (as in (6)).
        Based on data from acceptability judgment experiments, I will argue that the
zero complement indeed has different statuses in these two contexts. Relying on two
restrictions in the distribution of zero complements, the experimental data show that
these restrictions apply differently in contexts such as (1) and (6). The first restriction
concerns the animacy of the zero complement, the second one concerns its
crosslinguistic distribution; both will be introduced in more detail in Section 2. The
restriction of zero complements to non-human referents (as in (1)) in French becomes
weakened in contrastive contexts such as (6) and zero complements with human
antecedents become more acceptable. Going beyond French, Spanish typically does
not allow zero complements in non-contrastive contexts (a rare corpus example is
given in (7)), but it seems to allow them more easily in contrastive contexts as in (8)
(but see Section 2 for details).

(7)   Etxebarria (2001); CORPES, modified
        Hice   una procesión de   farmacia en farmacia hasta que en una
        I.made a   procession from pharmacy to pharmacy until   in one
        se   creyeron la historia de que se   me había olvidado la   receta
        REFL believed the story   that   REFL me had   forgotten the prescription
        y   me las   dieron   *sin*.
        and me them they.gave without
        'I made a procession from pharmacy to pharmacy until one of them believed
        the story that I had forgotten my prescription and they gave them (= pills) to
        me without it.'

(8)   Cabrera Infante (1995); CREA, modified
        A: ¿Con o sin   guarnición?
                with or without   garnish
               'With or without garnish?'
        B: Como no   soy   militar, *sin*.
               as   NEG I.am military without
               'As I am not in the military, without.'

        In the discussion of the empirical results, I focus on the status the zero
complement and tentatively suggest that we are dealing with a null pronoun in non-
contrastive contexts such as (1) and background deletion in the contrastive fragments
as in (6).

To my knowledge, this issue has not been systematically considered in the literature so far. Zribi-Hertz (1984a) considers (and then discards) ellipsis only as a general analytical option of zero complements in French PPs. However, she does not discuss whether zero complements in contrastive contexts are cases of ellipsis. Authier (2016) presents the contrastive example in (9), where *avec* picks up one of the alternatives presented in the previous context (*avec ceinture* vs. *sans ceinture*), alongside non-contrastive examples of French orphan prepositions (e.g., (1)). Given that he does not comment on the difference between contrastive and non-contrastive uses, I assume that he extends his analysis of the zero complement as a null pronoun to such contrastive contexts. Hence, there is a necessity to further analyze the status of zero complements in contrastive contexts and compare them to their use in non-contrastive ones.

(9)   Authier (2016: 261), modified
       Ils   ont   des vestes avec ceinture et des vestes sans   ceinture.
       they have jackets   with belt   and jackets without   belt
       Tu   veux quoi?   Une veste   avec?
       you want what   a   jacket with
       'They have jackets with belt and jackets without belts. What would you like? A jacket with?'

Note that the present empirical study goes beyond the analysis of zero complements in French PPs. The study also includes PPs with strong pronouns in complement position as they provide a baseline for the interpretation of data with zero complements. Additionally, Spanish data serves as a crucial reference point in crosslinguistic comparison concerning both the use of zero complements and strong pronouns. The goal of this paper is thus to provide answers to the research questions in (10)-(12) based on two acceptability judgment experiments (French and Spanish).

(10)   Status of the zero complement
       RQ1.a: Does the preposition's zero complement have the same status in reduced sentences with narrow contrastive focus on the preposition and in full sentences without narrow contrastive focus on the preposition?
       RQ1.b: Are zero complements in reduced sentences with narrow contrastive focus on the preposition the result of background deletion, while zero complements in full sentences without narrow contrastive focus are null pronouns?

(11)   RQ2 (Humanness): Is the acceptability of strong pronouns vs. zero complements sensitive to the humanness of the complement?

(12)   RQ3 (French vs. Spanish): Do the same factors influence the acceptability of strong pronouns vs. zero complements in both languages?

2. Background

The availability and distribution of French orphan prepositions is restricted in various ways. First, not all French prepositions can be orphan prepositions (cf. Zribi-Hertz

1984b: 58f.; Ilinski 2003: 269f.; Poplack et al. 2012: 218; Troberg 2020: 191-194; Tseng 2021: 791f.); as shown in (13), the preposition *par* 'by' cannot be used as an orphan preposition.

(13)   Troberg (2020: 186)
     *Paris, je   suis   passé par.
      Paris I   am   passed by
     'Paris, I have passed through it.'

Second, even those prepositions, which can in principle be orphaned, cannot always be orphaned. For example, *avec* as an orphan preposition is typically restricted to commitative and instrumental uses, while other uses need an overt complement (cf. (14)).[5]

(14)   Troberg (2020: 193)
     *La prudence est très importante. J' agis toujours avec.
      the caution   is very important   I act   always with
     'Caution is very important. I always act with it.'

Third, the zero complement is typically limited to non-human referents/antecedents. Finally, going beyond French, it has been observed that orphan prepositions are crosslinguistically restricted. Even languages closely related to French, such as Spanish or Portuguese, do not have orphan prepositions according to Zribi-Hertz (1984a, 1984b). I will use the last two restrictions to scrutinize whether the zero complements in contrastive (cf. (6)) and non-contrastive contexts (cf. (1)) are of the same type. Both restrictions will be introduced in more detail in Section 2.1 and 2.2.

2.1   Animacy restriction on zero complements in French PPs

In Zribi-Hertz (1984b: 62), orphan prepositions are considered the result of a gap in the inventory of French personal pronouns. The complement position of prepositions requires non-clitic pronouns (cf. Abels 2003a, 2003b), but French strong pronouns (*lui*, *elle*, *eux*, *elles*) tend to be limited to human referents (cf. Sandfeld 1965: 75; Pinchon 1972a, 1972b; Thun 1986; Jones 1996: 258; Cardinaletti & Starke 1999: 45; Ilinski 2003: 267; Veldre-Gerner 2007: 124; Adler 2012: 179f.). Consequently, French shows the quasi-complementary mapping between humanness and form of complement in (15).[6]

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[5]   The example in (14) also shows the defectiveness of the French pronoun inventory: The use of strong pronouns is dispreferred because of the animacy restriction (*ᵀJ'agis toujours avec elle* 'lit. I always act with her'), the use of a null pronoun is ungrammatical, and the PP cannot be pronomialized as a whole (**J'y agis toujours*).

[6]   Although this paper focuses on the animacy restriction it should be noted that there are other factors which favor or restrict the distribution of strong pronouns and zero complements in French PPs. For example, their distribution is linked to diatopic variation and register as the use of zero complements is more widespread in Canadian French and in spoken/colloquial varieties of French (cf. Weinrich 1982, King & Roberge 1990, King 2000, Zribi-Hertz 2000, Poplack et al. 2012, Grevisse & Goosse 2016). Interestingly, the animacy restriction may also interact with register in that the restriction of zero complements to non-

(15)   Zribi-Hertz (1984b: 65)
    a.   [+human] & Strong pronoun
          Marie, j'étais venu avec elle.
          Marie I was come with her
          'Marie, I came with her.'
    b.   [–human] & Zero complement
          Cette valise,   je voyage toujours avec.
          this suitcase   I travel   always   with
          'This suitcase, I always travel with it.'
    c.   [+human] & Zero complement
          [?] Marie, j' étais venu avec.
           Marie   I was came with
          'Marie, I came with her.'
    d.   [–human] & Strong pronoun
          [?] Cette valise, je   voyage   toujours avec elle.
           this suitcase I   travel   always   with her
          'This suitcase, I always travel with it.'

Deviations from (or counterexamples to) complementarity can be found both in the existing literature and in text corpora.[7] These counterexamples come in two types: strong pronouns used for non-human referents (16) and zero complement used for human referents (17).

(16)   Troyat Henri (1962), *Les dames de Sibérie,* in Danell (1973)
    Il retira   sa perruque, qui   lui tenait chaud, s'   éventa avec elle, [...]
    he removed his wig   which him kept   warm REFL fanned with her
    'He removed his wig, which kept him warm, and fanned himself with it'

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humans is weakened in colloquial registers (cf. Grevisse & Goosse's (2016: §1040) characterization of the use of zero complements referring to humans as part of the "langue parlée très familière"), as in (i) (a quote from a French TV show brought to my attention by an Isogloss reviewer).
(i)   Zemmour, Éric in *Zemmour et Naulleau* (Paris Première), April 2017
    Les politiques […] moi, je couche pas avec.
    the politicians   I   I sleep   NEG with
    'The politicians, I don' sleep with them.'
    Note that a parallel animacy constraint can be observed with the semantically weak prepositions *à* and *de* which show an alternation between a strong pronoun in complement position and a clitic pronoun substituting the whole PP: *à*/*de* + strong pronoun tends to be used for humans, while the clitics *y* and *en* tend to be used for non-humans (cf. Pinchon 1972a, 1972b, Kalmbach 2014). Interestingly, in this case the animacy constraint can be weakened as well, especially in colloquial French:
(ii)   Zribi-Hertz (2000)
    [Ce type]$_i$ mériterait qu' on en$_i$ parle à la radio.
    this guy   deserves   that one of.him talks on the radio
    'This guy deserves that he is talked about on the radio.'
[7]   Zribi-Hertz revised her view on this complementarity, and in Zribi-Hertz (2000) examples of strong pronouns for non-human referents are given (cf. also Zribi-Hertz 2021).

(17)   Chamoiseau Patrick (1992), *Texaco*; Frantext
         Les marins revinrent [...] chercher leur camarade. Ils   disparurent avec; [...]
         the sailors returned   look for their comrade they disappeared with
         'The sailors returned [...] to look for their comrade. They disappeared with
         him;'

Despite such counterexamples, both experimental and corpus studies have confirmed the link between complement type and humanness as a strong tendency. A preference of strong pronouns for human referents has been observed in the corpus studies by Danell (1973), Shimanskaya (2018) and Heidinger (2019; subcorpus with novels) and experiments by Shimanskaya (2018) and Heidinger (2023), and a preference of zero complements for non-human referents is observed in the corpus data by Poplack et al. (2012) and Heidinger (2019; subcorpus with novels).

2.2   Restriction on crosslinguistic distribution of zero complements in PPs

Orphan prepositions as in (1) do not exist in all languages. Although broad crosslinguistic and typological studies are still missing (to my knowledge), one does not have to look far from French to find languages which do not have orphan prepositions. Zribi-Hertz (1984a) names Spanish (cf. (18)) and (Brazilian) Portuguese as languages without orphan prepositions.

(18)   Zribi-Hertz (1984a: 19)
         a.   Mi sombrero, vine   con él.
                 my hat   I.came with him
                 'My hat, I came with it.'
         b.   *Mi sombrero, vine con.

Although Campos (1991: 746) argues that orphan prepositions are possible in Spanish with a very limited set of prepositions (e.g., *encima* 'on top of' in (19)), no examples are given for *con* 'with' and *sin* 'without', the equivalents of the prototypical and well attested orphan prepositions in French.

(19)   Campos (1991: 746)
         A: ¿Qué puso   encima   del   estante?
                  what she.put   on top   of the shelf
                 'What did she put on top of the shelf?'
         B: Puso   libros encima.
                 she.put books on top
                 'She put (some) books on top.'

Further, most (but not all) of the prepositions given in Campos (1991) which allow orphaning in Spanish are complex prepositions (*encima de* 'on top of', *enfrente de* 'in front of', *cerca de* 'close to', *dentro de* 'inside of' etc.).[8] Similarly, Troberg (2020: 203) notes that orphaning in Spanish is possible with complex prepositions (*locutions prépositives* in her terms), but ungrammatical with lexical prepositions (unlike French,

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[8]   Campos (1991: 743) uses the term *substantive preposition* to differentiate them from *regular prepositions*.

where lexical prepositions, e.g., *avec* 'with', *après* 'after', *contre* 'against', can be orphaned). Within Troberg's (2020) system of PP types the zero complement does not always have the same status. While the zero complement is the complement of P in the case of lexical prepositions (e.g., *sans* 'without'), it is the complement of an axial term in the case of complex prepositions (e.g., *à côté de* 'next to'). This allows to link the crosslinguistic availability of zero complements not only to descriptive labels such as *simple* vs. *complex PPs*, but to structural properties of the zero complement's head. Since zero complements are relatively unrestricted with complex prepositions, Troberg (2020: 203) assumes that it is the lexical prepositions which are the locus of variation with the Romance languages.

In my own experimental study, I also concentrate on the French lexical prepositions *avec* 'with' and *sans* 'without' and their Spanish equivalents, and thus our expectation is that these are absent in Spanish in contexts corresponding to the prototypical instantiations as in (1), i.e., non-contrastive contexts.

2.3   Restrictions as diagnostics

Both the restrictions on animacy and on crosslinguistic distribution are typically stated for orphan prepositions in non-contrastive contexts (as in (1)). This raises the question of whether these restrictions on zero complements also hold in contrastive contexts. In fact, I will use the two restrictions as diagnostics for whether the zero complement is of the same type in contrastive and non-contrastive contexts.

Following Zribi-Hertz (1984a) and Authier (2016) I assume that the zero complement in non-contrastive contexts as in (1) is a null pronoun. In contrastive contexts as in (6), however, we may not be dealing with a null pronoun, but with background deletion. Compare the use of *avec* in (1) and *sans* in (20B): Does the zero complement have the same status in both cases?

(20)   A: Est-ce que tu   prends le café   avec du sucre?
                is   it that you take   the coffee with P:the sugar
                'Do you take coffee with sugar?'
        B: No, sans.
                no, without
                'No, without.'

In (20B), the preposition *sans* is contrastively focused (contrasting with *avec*) and all non-focal material remains unexpressed. Such cases, also referred to as *fragments*, lend themselves to an ellipsis analysis where the unexpressed material is deleted. Under such an analysis, the zero complement would not be a null pronoun, but the syntactic structure would simply remain unexpressed phonologically (cf. (21B)).

(21)   A: Est-ce que tu prends le café avec du sucre?
        B: Non, ~~je le prends~~ sans ~~sucre~~.

Determining the exact nature of this deletion process is not trivial. A widespread approach to ellipsis involves the movement of the pronounced part to a higher focus position (as proposed by Merchant 2005). Such an analysis would require, however, independent evidence for the movement of P without its complement, i.e.,

for the movement of P outside of elliptical constructions. Ott & Struckmeier (2018) argue more generally that the *movement-before-deletion* approach to ellipsis is not on the right track (based on data from German modal particles in elliptical constructions). Their proposal that "elliptical expressions are derived by deletion applying to independently generated surface forms, with no exceptional movements" (Ott & Struckmeier 2018: 400) is more suitable for an ellipsis analysis of (at least some) prepositions with zero complements.[9]

Irrespective of the exact nature of the deletion process, I assume that background deletion is less restricted than the availability of null pronouns. Unlike null pronouns, background deletion does not interfere with the pronoun inventory of the language. If contrastive and non-contrastive contexts indeed exhibit the two different types of zero complements mentioned above, we expect to observe fewer restrictions in contrastive than in non-contrastive contexts.

Hence, the predictions to be empirically tested are (i) that the animacy restriction on French zero complements is stronger in non-contrastive than in contrastive contexts and (ii) that a language which does not allow zero complements in non-contrastive contexts, may allow them in contrastive contexts. Both predictions will be tested in experimental studies against the data of French and Spanish. Collecting acceptability judgments is a well-suited method for the phenomenon at hand because it gives us easily comparable data for the two languages. It allows us to collect intersubjective and graded judgments (which is important since the phenomena in question may not necessarily display sharp and general grammaticality contrasts; cf. "?" and not "*" in Zribi-Hertz's (1984a) judgments in (15)).

3. Experimental study

3.1 Method

42 monolingual native speakers of European Spanish (age range from 22 to 57 years; average = 34) and 42 monolingual native speakers of European French (age range from 21 to 58 years; average = 32) were recruited for the experiment via Prolific Academic (https://www.prolific.co/) and received a compensation of £ 2 for their participation. The experiment was presented in a web-based environment using the experimental software Limesurvey (https://www.limesurvey.org). The experiment consisted of three stages. In the first stage, participants received explanations and legal information and answered demographic questions. In the second stage, a short training phase allowed participants to get accustomed to the set-up of the actual experimental trials. In this stage, participants saw and judged two items which were structurally identical to the actual experimental stimuli but augmented with explanations about the experiment (e.g., use of the rating scale). In the final and crucial stage, each participant saw 12 trials on separate pages.

Experimental items were manipulated according to the factorial design to be described in Section 3.2, resulting in a total of 6 different sets of trials, i.e., 6 different lists. In addition to the 12 abovementioned trials, the lists contained four control trials

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[9]   I am grateful to an Isogloss reviewer for pointing out this issue related to a movement analysis of the remnant preposition and for hinting at Ott & Struckmeier's (2018) alternative proposal.

(but no distractors). Each participant saw one list. Each list was seen by 7 participants. In each trial, participants were shown a short dialogue consisting of a question and an answer, as in Figure 1 (cf. (22) for translations). The complete stimulus material is given in Table 15 (French) and Table 16 (Spanish) in the appendix.

Figure 1.   Example of stimulus (French)

> *Voici un bref échange entre A et B. Jugez l'acceptabilité grammaticale de la réponse de B.*
>
> A: Alors, qu'est-ce que tu préfères?
>
> B: Je préfère chanter sans Marie qu'avec.
>
> ❶ Veuillez sélectionner une réponse ci-dessous
>
> ○ tout à fait inacceptable
>
> ○
>
> ○
>
> ○
>
> ○ parfaitement acceptable

Participants were asked to give acceptability ratings for the answer by B. They indicated their acceptability judgments on a 5-point Likert scale, where the extreme points were labelled as "completely unacceptable" and "perfectly acceptable". In the training phase, they were instructed to base their judgements solely on grammatical acceptability. Neither the credibility of the content that is expressed nor the likelihood of the answer in the context of the question should be taken into consideration.[10] The declarative uttered by B was manipulated according to the factorial design. The order of trials was randomized. After the last trial, participants returned to Prolific Academic to receive their reward.

3.2   Factorial design

Three factors (as independent variables) were considered in the experimental design: Syntactic construction, humanness of complement, and form of complement as within-subjects factors. As laid out in Section 1, one interest of this study is the acceptability of strong pronouns and zero as PP complements in dependance of the complements' animacy and the syntactic construction. In all stimuli, the last PP of the dialogue is the target constituent for which the factors *form of complement*, *humanness of complement* and *construction* were manipulated. The factor *construction* has three levels:

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[10]   Stimuli were presented together with a question, because one type of syntactic construction tested in the experiment, namely fragment answers, requires a question-answer structure. For the sake of homogeneity among the stimuli I also presented the other two constructions, which do not need a preceding question, in a question-answer pair.

comparative, fragment,[11] non-contrastive, as exemplified in (22B)-(24B) (including the preceding questions). Comparatives and fragments share the following properties: the target complement has an antecedent that is already the complement of a preposition (e.g., in (22B) *Marie* is the antecedent of *elle* and the complement of the preposition *sans*), and the proposition hosting the target complement contrasts with the preceding preposition. This is not the case in the third construction, which I therefore label as *non-contrastive*.

(22)   Comparative (= contrastive)
        A: Alors, qu'   est-ce que tu   préfères?
                so,   what is-it   that you prefer
                'So, what do you prefer?'
        B: Je préfère chanter sans   Marie qu'   avec elle.
                I prefer   sing   without Marie than with her
                'I'd rather sing without Marie than with her.'

(23)   Fragment (= contrastive)
        A: Tu   préfères jouer avec Jean?
                you prefer   play with Jean
                'You'd rather play with Jean?'
        B: No,   sans.
                no   without
                'No, without him.'

(24)   Non-contrastive
        A: Tu   cherches ton chapeau?
                you look for your hat?
                'Are you looking for your hat?'
        B: Oui, je parais plus   jeune avec.
                yes I look   more young with
                'Yes, I look younger in it.'

The remaining two factors can also be illustrated with the data in (22)-(24). The factor *humanness* concerns the humanness of the targeted complement and has two levels: human (as in (22) and (23)), and non-human (as (24)). Finally, the factor *form* concerns the morphosyntactic properties of the targeted complement and has two levels: strong pronoun (as in (22B)) and zero (as in (23B) and (24B)). The crossing of all three factors resulted in the 12 different conditions given in Table 1. The same design was used both in the experiment on French and on Spanish.

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[11]   Strictly speaking, the term *fragment* is more suitable when the complement is zero (as in (23B)) than when it is a strong pronoun. However, even with a strong pronoun the construction is still rather reduced which legitimates this more general use of the term *fragment*.

Table 1.   Experimental conditions

Condition	Construction	Humanness	Form
1	comparative	+hum	strong pronoun
2	comparative	+hum	zero
3	comparative	-hum	strong pronoun
4	comparative	-hum	zero
5	fragment	+hum	strong pronoun
6	fragment	+hum	zero
7	fragment	-hum	strong pronoun
8	fragment	-hum	zero
9	non-contrastive	+hum	strong pronoun
10	non-contrastive	+hum	zero
11	non-contrastive	-hum	strong pronoun
12	non-contrastive	-hum	zero

Each participant saw the respective 12 conditions for his/her language one time. Each condition was presented in six different lexicalizations,[12] and participants saw each lexicalization only once.[13] In the lexicalizations, all relevant PPs were headed by the respective equivalents of *with* and *without*. This choice is motivated by the fact that in French these two prepositions can easily function as *orphan prepositions*, and thus seem to constitute the core cases of prepositions without overt complements.

The dependent variable in the design is the acceptability as indicated by the participants. More precisely, participants were asked to rate the grammatical acceptability of the answer given by B in the short dialogues. Ratings were indicated on a 5-point Likert scale ("completely unacceptable" and "perfectly acceptable" as labels for the extreme points).

3.3   Results

To analyze the impact of the three factors, i.e., *construction*, *humanness* and *form* (and the interaction between them), on acceptability, separate linear mixed model analyses were conducted for French and Spanish (R package lme 4; Bates et al. 2015). This regression analysis determines the impact of these factors on the dependent variable, i.e., the acceptability score on a 5-point Likert scale. The model includes *construction*, *humanness* and *form* as fixed factors, and *subject* (= participant) and *lexicalization* as

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[12]   In the Spanish stimulus material, condition 2 was only presented in 5 lexicalizations: By mistake, one of the lexicalizations was presented to 14 participants and another one was presented to none. In order to keep the overall judgments per condition constant we considered all 14 judgments for this lexicalization in the analysis.

[13]   Obviously, different lexical items had to be built for stimuli with human and with non-human complements. In both cases, however, the complements' antecedents were semantically definite: proper names (*Juan*, *Marie* etc.) in the case of human complements, and noun phrases with a definite article (e.g., *las gafas* 'the glasses') or possessive determiner (e.g., *ton chapeau* 'your hat') in the case on non-human complements. In some cases, the use of the definite article might not be the most frequent or typical use in that context. For example, in the example stimulus in (i) the bare noun (*sin gafas*) might be more frequent than the definite noun phrase (*sin las gafas*) (cf. also Adler 2012: 225 on French *sans*). But to keep this aspect constant across stimuli, I chose to use definite antecedents in all cases.

(i)   A: Entonces, ¿qué opinas? 'What do you think?'
         B: Veo mejor sin   las gafas que con.
                 I.see better without the glasses than with

random factors. The mean acceptability score for all 12 conditions are given in Table 8 in the appendix. For reasons of accessibility, the following subsections start with a brief descriptive analysis of the results.

3.3.1 French

Starting with French, the form of the complement has very different consequences for acceptability with human and with non-human complements (cf. Figure 2[14]): With human complements strong pronouns receive higher acceptability scores than zero, while with non-human complements, it is zero that receives higher acceptability scores than strong pronouns.

Figure 2.   Acceptability scores: Interaction of humanness and form (French)
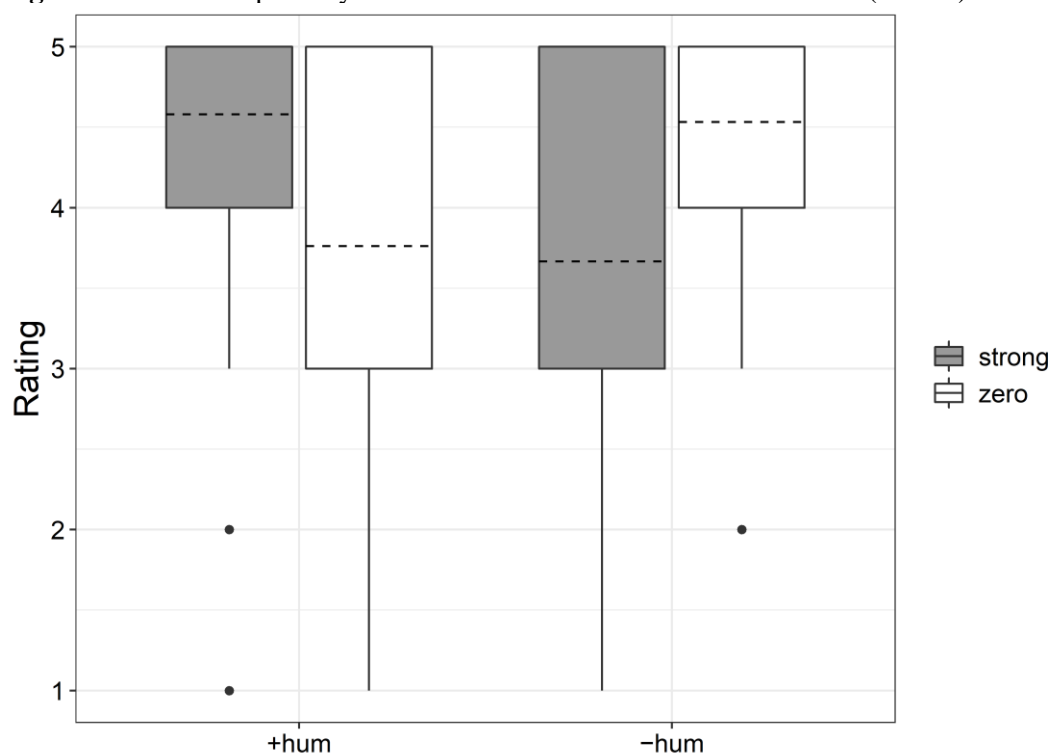
Further, zero complements are more acceptable with non-human than with human complements in all three constructions considered (cf. Figure 3). However, the effect of humanness on the acceptability of zero complements seems to depend on the construction: It is strongest in non-contrastive constructions, followed by comparatives and finally fragments.

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[14]   In the box plots, the dashed line indicates the mean (not median) acceptability. The box covers the range from the first to the third quartile. Whiskers show the range from the lowest to the highest data point in the data set excluding any outliers (the latter are indicated by dots).

Figure 3.   Acceptability of zero complements (French)
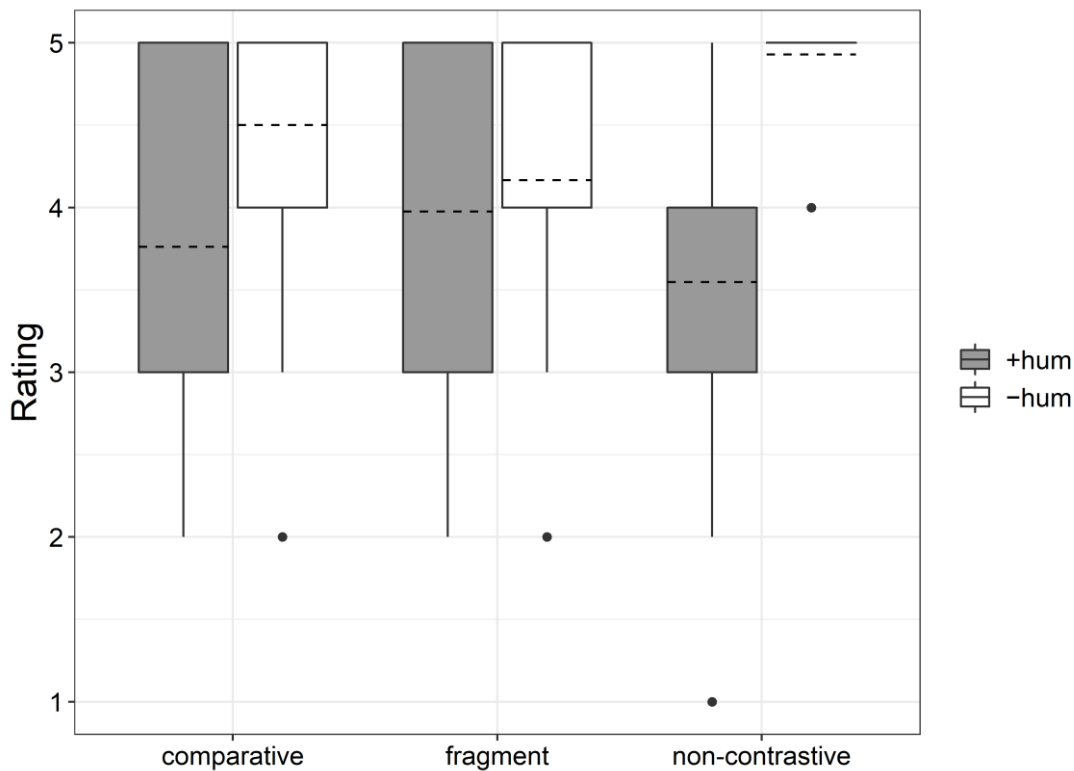
The above descriptive analysis is backed up by the inferential statistical analysis. First, we observe a strong interaction between *form* and *humanness* (Estimate = -1.95238, P<0.0001; cf. Table 9 in appendix for full model with all three factors). The specifics of this interaction are pursued in two smaller models.

Separate linear mixed model analyses for human and non-human complements show that strong pronouns (as opposed to zero) significantly increase the acceptability of human complements (cf. Table 2), but significantly decrease the acceptability of non-human complements (cf. Table 3). Hence, the interaction, which is descriptively shown in Figure 2, is statistically significant.

Table 2.   Linear mixed model for [+human] (French)

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	3.76190	0.09325	89.81297	40.342	< 2e-16 ***
Form_strong	0.81746	0.10899	209.00000	7.501	1.79e-12 ***

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1)

Table 3.   Linear mixed model for [-human] (French)

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	4.5317	0.1797	39.6626	25.217	< 2e-16 ***
Form_strong	-0.8651	0.2392	31.6652	-3.617	0.00102 **

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1)

In a next step, we zoom in on zero complements and their acceptability in different constructions in relation to the complement's humanness. As stated above, in all three constructions, zero complements are more acceptable with non-human than with human complements (cf. Figure 3). The respective linear mixed model shows a significant interaction between the factors *construction* and *humanness* (cf. Table 10

in appendix). To determine for which of the three constructions in Figure 3 the differences are statistically significant, three linear mixed models with relevelling of the base condition were built. This allows for the three relevant pairwise comparisons: zero/comparative/+human vs. zero/comparative/-human; zero/fragment/+human vs. zero/fragment/-human; zero/non-contrastive/+human vs. zero/contrastive/-human (cf. Table 11-13 in appendix). The difference turns out to be statically significant only in the case of *non-contrastive* (Estimate = 1.3810, P<0.0001) and *comparative* (Estimate = -0.7381, P<0.001), but not in the case of *fragment* (Estimate = 0.1905, P = 0.3375).

As for the effect of humanness on the acceptability of zero complements, the three constructions are thus ranked as in (25). The effect is strongest in non-contrastive constructions, followed by comparatives and finally fragments. While in non-contrastives and comparatives zero complements are significantly more acceptable with non-human than with human referents, no statistically difference is observed for zero complements in fragments.

(25)   Effect of humanness on acceptability of zero complements (French)
        non-contrastive > comparative > fragment

Hence, the effect of humanness on the acceptability of zero complements depends on the construction. Given that this is our first diagnostic (cf. Section 2.1), I will discuss in Section 4 whether these differences in acceptability suggest a difference between background deletion (comparatives and fragments) vs. null pronouns (non-contrastives).

3.3.2 Spanish

In Spanish, we observe a very different distribution of acceptability asymmetries. Unlike in French, acceptability is not driven by the interaction between the humanness and the form of the complement. Instead, the form of the complement is the strongest predictor for the acceptability – with additional influence of the factor *construction* on the acceptability of zero. Figure 4 shows (i) that strong pronouns increase and zero complements decrease acceptability and (ii) that zero complements are more acceptable in the two contrastive constructions *comparative* and *fragment*.

Figure 4.   Acceptability of zero and strong pronouns in three constructions (Spanish)
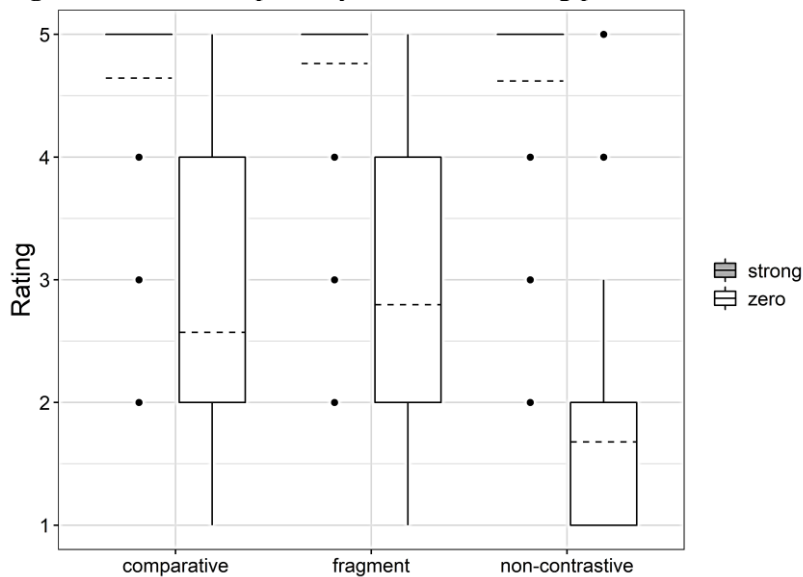
To support this descriptive interpretation, a linear mixed model analysis was conducted. Since only one two-way interaction and none of the three-way interactions were significant, the model was refitted with the same three factors but without the three-way interaction and only with an interaction between *form* and *construction* (the full model for *construction*, *humanness* and *form* as fixed factors is given in Table 14 in the appendix). Model comparison showed that adding the three-way interaction does not improve the model's fit. Hence the model with just an interaction between form and construction was selected for further analysis (cf. Table 4). This model again shows a significant interaction between *form* and *construction*.

Table 4.   Refitted Linear mixed model with interaction between *form* and *construction* (Spanish)

	Estimate	Std.Error	df	tvalue	Pr(>|t|)
(Intercept)	2.46014	0.12685	0.37239	19.395	< 2e-16 ***
Humanness_non.human	0.24265	0.08447	69.16104	2.873	0.0054 **
Construction_fragment	0.21571	0.14705	61.42261	1.467	0.1475
Construction_non.contrastive	-0.90289	0.14710	60.43282	-6.138	7.06e-08 ***
Form_strong	2.06139	0.14710	60.43282	14.013	< 2e-16 ***
Construction_fragment: Form_strong	-0.09701	0.20686	69.93062	-0.469	0.6406
Construction_non.contrastive: Form_strong	0.87908	0.20751	63.88323	4.236	7.44e-05 ***

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1)

As a follow up, separate models for stimuli with zero complements and with strong pronouns were built. The models show that with zero complements the two contrastive constructions are significantly more acceptable than the non-contrastive one (Table 5), and that there is no significant difference for strong pronouns between the three constructions (Table 6).

Table 5.   Linear mixed model for *zero complement* (Spanish)

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	2.5855	0.1525	50.1265	16.959	< 2e-16 ***
Construction_fragment	0.2122	0.1630	28.8865	1.301	0.203
Construction_non.contrastive	-0.9069	0.1630	28.8865	-5.562	5.39e-06 ***

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1)

Table 6.   Linear mixed model for *strong pronoun* (Spanish)

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	4.64286	0.09813	42.96931	47.312	<2e-16 ***
Construction_fragment	0.11905	0.12050	30.17571	0.988	0.331
Construction_non.contrastive	-0.02381	0.12050	30.17571	-0.198	0.845

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1)

As for the acceptability of zero complements in Spanish, and this is the second diagnostic introduced in Section 2, the three constructions are ranked in Spanish as in (26). The above statistical analysis shows that zero complements receive significantly higher acceptability scores in comparatives and fragments than in non-contrastives (with no significant difference between comparatives and fragments). As with the first diagnostic, I will discuss this result in Section 4 w.r.t. whether it suggests a distinction between background deletion (comparatives and fragments) vs. null pronouns (non-contrastives).

(26)   Acceptability of zero complements (Spanish)
        comparative | fragment > non-contrastive

4.   Discussion

4.1   The status of zero complements in PPs: Null pronouns and/or background deletion?

The experimental data shed light on the potentially different nature of zero complements in contrastive and non-contrastive contexts (RQ1). Recall from Section 1 that in contrastive contexts, zero complements lend themselves to an analysis as background deletion (a type of ellipsis). While in non-contrastive contexts, existing work on French orphan prepositions suggests an analysis as a null pronoun (Zribi-Hertz 1984a). However, Authier (2016) seems to assume null pronouns both in non-contrastive and in contrastive contexts (cf. (9) in Section 1). Given that only null pronouns touch on the pronoun inventory of the language, I assume that background deletion underlies less restrictions than null pronouns. If contrastive and non-contrastive contexts indeed exhibit the two different types of zero complements mentioned above, one expects fewer restrictions in contrastive than in non-contrastive contexts. In this respect, the experimental data presented in Section 3.3 allow us to evaluate two concrete predictions: (i) the animacy restriction on French zero complements is stronger in non-contrastive than in contrastive contexts, and (ii) languages, which do not allow zero complements in non-contrastive contexts, may allow them in contrastive contexts (relying on Spanish for crosslinguistic comparison).

As concerns French, we are thus interested in whether zero complements underly similar humanness restrictions in contrastive and non-contrastive contexts.[15] If the animacy restriction observed in non-contrastive contexts is lifted or weakened in contrastive ones, this might suggest different types of zero in the two contexts (a null pronoun specified for non-humanness vs. unspecified deletion). The experimental data clearly point in this direction, but the picture is not straight forward. The effect that humanness has on the acceptability of zero complements is indeed strongest in non-contrastive contexts (Scores = 3.55 human vs. 4.93 non-human) and the effect is missing (or at least not statistically significant) in fragments (Scores = 3.98 human vs. 4.17 non-human). However, in comparatives, which are contrastive as well, zero complements receive significantly higher scores with non-human (Score = 4.50) than with human referents (Score = 3.76) (cf. Section 3.3.1 for the inferential statistics). Although the effect of humanness on the acceptability of zero complements is smaller in comparatives than in non-contrastive contexts, it exists, nonetheless. The humanness effect thus suggests different types of zero in fragments (background deletion) and non-contrastive contexts (null pronoun), but the results seem inconclusive for comparatives.

As concerns Spanish, zero complements receive statistically higher acceptability scores in contrastive than in non-contrastive contexts: contrastive = 2.68, non-contrastive = 1.68 (cf. also Section 3.3.2). The lower acceptability of zero complements in non-contrastive contexts may suggest that contrastive and non-contrastive contexts do not exhibit the same type of zero complement: background deletion in contrastive contexts vs. null pronoun in non-contrastive contexts, and only background deletion, but not null pronouns would be available. The cautiousness of this formulation is due to the reduced acceptability of zero complements also in contrastive contexts (Score = 2.68 out of 5). This is indeed surprising since I could not find hints to strong acceptability effects of background deletion in such contexts in the literature (however, literature on ellipsis rarely discusses the complement of prepositions); the zero complements also do not violate Kuno's (1982: 84f.) ban on *partial discourse deletion* (cf. also Reich 2002: 75f.). Moreover, we do not observe a similar effect in French where zero complements receive high acceptability in contrastive and non-contrastive contexts (scores >4 (human and non-human lumped together); Section 3.3.1). One possible explanation of the low acceptability of zero complements in contrastive contexts in Spanish is that the acceptability of null pronouns has an impact on the acceptability of background deletion (as a surface analogy concerning zero complements irrespective of their status). As a consequence,

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[15]   Studies on object drop in Romance languages also report animacy effects: Anaphoric null objects occur more often with non-human referents in Brazilian Portuguese (Schwenter 2006; Cyrino & Lopes 2016), some varieties of Spanish (Schwenter 2006) and French (Larjavaara 2000: 65f. (and the literature cited therein); Cummins & Roberge 2005). Interestingly, however, Cyrino & Lopes (2016) analyze anaphoric null objects in Brazilian Portuguese as cases on DP-ellipsis due to their similarities with verb phrase ellipsis (while e.g., Cummins & Roberge (2005: 52) assume that French null objects are *pro*). Therefore, animacy restrictions and ellipsis do not exclude each other. However, the type of ellipsis exhibited by Brazilian Portuguese null objects seems to be of a rather different nature than the background deletion discussed in this paper as it underlies substantial structural restrictions (as described in Cyrino & Lopes 2016) missing in background deletion.

not only null pronouns but also background deletions in PPs score rather low in Spanish.

4.2   New (descriptive) insights and comparison with existing literature

Besides contributing to the analysis of zero complements in French and Spanish PPs, the experimental data also provides new empirical insights and allows for comparison with the existing literature. In this regard, two additional research questions (cf. Section 1) are discussed in the following:

RQ2: Is the acceptability of strong pronouns vs. zero complements sensitive to the humanness of the complement?

In French, the relation between humanness and pronoun form in PPs is typically described as a tendency and not as a strict rule. Already in Zribi-Hertz (1984b), the dispreferred combinations are not judged ungrammatical (= *), but only as constructions with reduced grammaticality (= ?). Our experimental data support this characterization since the dispreferred combinations receive relatively high acceptability scores: 3.67 for strong pronoun & non-human, 3.76 for zero & human. These acceptability scores also align with the results from various corpus studies which show that the combinations *strong pronoun & non-human* and *zero & human* are rather infrequent but do appear in texts (cf. Danell 1973; Poplack et al. 2012; Shimanskaya 2018; Heidinger 2019).

Considering not only the relation between the acceptability scores of different experimental conditions, but also the position of these scores on the acceptability scale, it is striking that also the dispreferred combinations receive relatively high acceptability scores. The similarity of preferred (frequent) and dispreferred (rare) combinations lends itself to an interpretation of the dispreferred ones as *latent constructions* (Adli 2011: 398), i.e., constructions which receive relatively high acceptability scores, but are rarely produced since they are outranked by some alternative construction with higher acceptability.

It is noteworthy in this respect that in our stimuli material, human complements always had proper names as antecedents. Therefore, the respective referents were individuated human beings. This is important because individuation might have an impact on the acceptability of zero complements for human referents (cf. Adler 2012: 177). In the minimal pair in (27), the use of the zero complement with the non-individuated antecedent *ces-gens* 'those people' is deemed less "vulgar" (Adler 2012: 177) than the use of zero for the individuated antecedent *Paul*. Hence, the relatively high acceptability scores for French human zero complements were given for the presumably least acceptable type of human referent.

(27)   Adler (2012: 177)
      a.   J' ai entendu parler de ces   gens (-là),   mais je n' ai   jamais
            I've heard   talk   of these people   but   I   NEG have never
            dîné avec.
            dined with.
            'I've heard of these people, but I've never had dinner with them.'
      b.   J 'ai entendu parler de Paul, mais je n' ai   jamais dîné avec.
            I' ve heard   talk   of Paul   but I   NEG have never dined with   .
            'I've heard of Paul, but I've never had dinner with him.'

Under the assumption that zero is specified as non-human and strong pronouns as human, the two dispreferred combinations could further be characterized as "grammatical *dehumanization*" (zero for human complements) and "grammatical *humanization*" (strong pronouns for non-human referents) respectively. Zribi-Hertz (1984a: 17f.) notes (for complements of PPs, and also more generally) that grammatical dehumanization is more easily available than humanization (cf. also Adler 2012: 180). Our acceptability data, however, show no such asymmetry, and stimuli with dehumanization (3.76 for zero & human) only score slightly better than those with humanization (3.67 for strong pronoun & non-human).

Turning to Spanish, our data show that strong pronouns receive very high acceptability scores independently of whether they refer to human or to non-human referents. This is in line with Jensen's (1973: 118) corpus findings, where strong pronouns in Spanish PPs refer about equally often to human and non-human referents. It is also in line with Fernández Soriano's (1999: 1220) and Pomino's (2017: 702) statements that as complements of prepositions strong pronouns are not restricted to humans. Zero complements receive much lower acceptability scores than strong pronouns, but as with strong pronouns the acceptability does not depend on the humanness of the referent.

A last comment on RQ2: The low acceptability scores in Spanish for stimuli with zero complements, especially in non-contrastive contexts, align with statements on the absence or restricted use of orphan prepositions in Spanish (Zribi-Hertz 1984a, 1984b, Campos 1991). They also correspond to the scarcity of zero complements in non-contrastive contexts when looking at text corpora (although a systematic corpus study is still missing).

RQ3: Do the same factors influence the acceptability of strong pronouns vs. zero complements in both languages?

To compare French and Spanish, I concentrate on the acceptability of combinations of humanness and form (cf. Figure 5), and the acceptability of zero complements in the three constructions (cf. Figure 6).

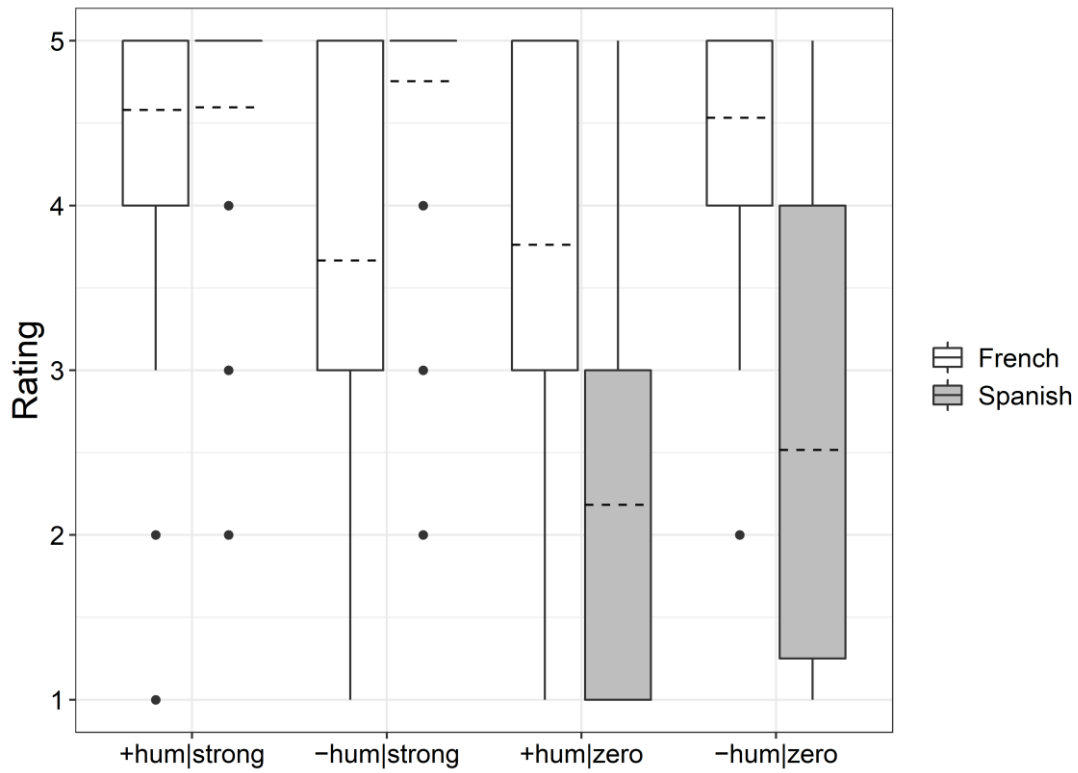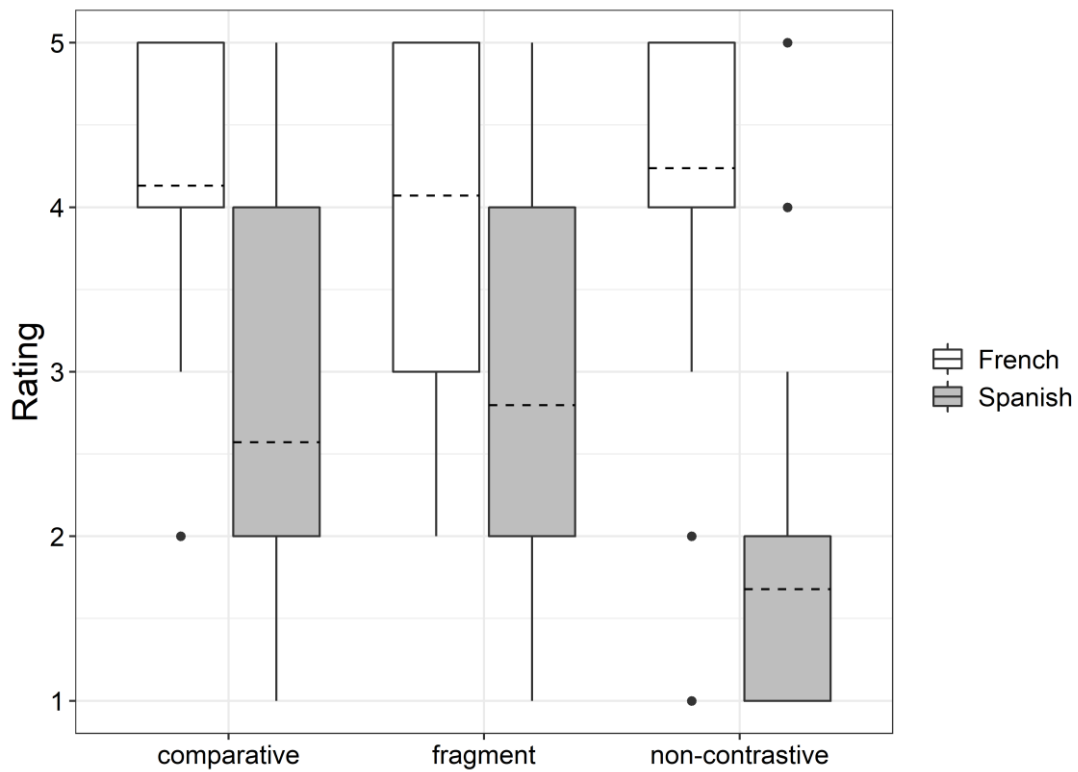**Figure 5.**   Acceptability for combinations of humanness and form

Figure 6.   Acceptability of zero complements in three different constructions

The acceptability data show two very distinct systems in French and Spanish. While the acceptability scores strongly depend on the combination of humanness and form in French, humanness does not have an impact in Spanish, where acceptability is mainly driven by form: strong pronouns > zero. As concerns strong pronouns referring to non-humans, we observe the expected higher acceptability scores in Spanish than in French, and strong pronouns in Spanish PPs are indeed unrestricted in terms of animacy. Further, zero complements receive much higher scores in French than in Spanish across all three constructions. In Spanish, we observe an effect of the construction: zero complements score significantly lower in non-contrastive contexts than in contrastive ones.

What both systems have in common is that the construction (or context) in which the zero complement appears has an impact on acceptability. However, this impact, again, manifests itself in different ways in the two languages. In French, the effect of humanness interacts with the type of construction, and the acceptability of zero complements for human referents is higher in contrastive than in non-contrastive contexts. Non-contrastives are the construction where the effect of humanness on the acceptability of zero complements is the strongest (Figure 3). In Spanish, zero complements are more acceptable in contrastive than in non-contrastive contexts, but unlike in French, this occurs independently of humanness. In Spanish, non-contrastives are the construction where zero complements receive the lowest scores (Figure 6).

5. Conclusions and outlook

Zero complements in French PPs are a much-debated topic. The present paper contributes to this debate by analyzing zero complements in contrastive and non-contrastive contexts. The acceptability experiments showed two important asymmetries between contrastive and non-contrastive contexts w.r.t. zero complements. In French, animacy restrictions are stronger in non-contrastive than in contrastive contexts. In Spanish, restrictions on zero complements are stronger in non-contrastive than in contrastive contexts. Given that zero complements are more restricted in non-contrastive than in contrastive contexts, I tentatively conclude the existence of two types of zero complements (cf. Table 7): null pronouns in non-contrastive contexts, and background deletion in contrastive contexts. Crucially, in Spanish only background deletion, but no null pronouns are available.

Table 7.   Types of zero complements in French and Spanish PPs

	French	Spanish
Background deletion (fragments)	✓	✓
Null pronoun (non-contrastives)	✓	*

Additionally, the present study has provided novel empirical insights about strong pronouns and zero complements in French and Spanish PPs. For Spanish, the study has contributed to the understudied topic of zero complements in PPs and to the question of potential animacy effects on strong pronouns. For French, where the phenomena of strong pronouns and zero complements have received much more

attention, the study provides a new data type which enhances the empirical coverage in the sense of methodological triangulation (cf. Mackey & Gass 2015). For example, using graded acceptability judgments allows to locate the position of "dispreferred" combinations (e.g., strong pronouns for non-human referents) in the acceptability space.

The research prospects resulting from this study are manifold. For example, it is desirable to verify the presence of animacy restrictions and their weakening in contrastive contexts also for prepositions for which Authier (2016) does not assume null pronouns as the zero complement (e.g., *pour* 'for', as in (5)). Further, it would be interesting to evaluate restrictions on the use of zero complements besides animacy. For example, it has been observed that *avec* 'with' restricts the uses of zero complements mainly to instrument and comitative uses (cf. (14)). The question is thus whether this restriction also holds in contrastive uses of the preposition or do we observe the same weakening of restrictions as in the experimental data from this study.

Acknowledgments

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