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Prepositional small clauses in English: A dual-category analysis

Patrick Farrell

1 Introduction

This paper presents a comprehensive analysis of a hitherto understudied distinct class of subject-containing phrases apparently headed by a preposition, exemplified by the following sentences.

(1) a. Can you imagine the pope in a bikini?  
b. I would like to see all these criminals behind bars.  
c. Your mother on a motorcycle would be hilarious.

Relying on standard kinds of evidence for phrasal status, it is argued that these are true prepositional “small clauses” (PrepSCs), i.e., subject-containing phrases lacking tense and auxiliaries and headed by a preposition, which differ in important ways from what has more commonly, and with considerably less motivation, been analyzed as a small clause consisting of a DP and a particle/preposition (e.g., Kayne 1985, Aarts 1989, Guéron 1990, Dikken 1995, Haegeman and Guéron 1999), examples of which are given in (2).

(2) a. Did you try the shoes on?  
b. I would like to put all these criminals away.  
c. We turned all the lights off.

It is further shown that true prepositional small clauses are profitably analyzed as mixed-category phrases whose head is a dual category word, as in Lapointe 1993. Under this analysis, their head belongs to the two categories D and P and therefore projects both a PP node containing the preposition and its complement and a higher DP node containing the subject phrase and the PP. This analysis is supported, in large part, by the same kind of evidence that has been used to argue for a mixed-category analysis of possessive gerund phrases, such as those in (3), which have the internal syntax of VPs and the external syntax of nominal phrases (NPs or DPs).

(3) a. I didn’t appreciate their lying to us.  
   b. Their failing to visit the senator could be a problem.

PrepSCs have the external syntax of DPs but the internal syntax of PPs. The prepositional character of these phrases is accounted for by the inner PP level; their DP-like distribution is accounted for by the outer DP level.

Following a general overview in §2 of the mixed-category phenomenon and some different analytical approaches that have been pursued, §3 discusses the key distinguishing syntactic features of prepositional SCs and shows how the proposed analysis is motivated by those features. §4 considers some conceivable alternative analyses and their shortcomings. §5 concludes with a discussion of some of the broader implications of the analysis.
2 Mixed-category phrases

English possessive gerund phrases (PossGPs) of the kind illustrated in (3) are a classic example of mixed-category phrases (e.g., Abney 1987, Pullum 1991, Lapointe 1993). Evidence for their mixed-category status comes from two conflicting patterns of syntactic behavior. On the one hand they have essentially the same distribution as DPs (or NPs, depending on theoretical framework), as illustrated by the following examples in which they function alternatively as object of preposition, as clausal subject, and as clausal direct object.

(4)  a. We weren’t particularly happy about your failing the class.
     b. Could your winning the tournament be of any benefit to us?
     c. I never understood my son’s quitting the team.

Example (4b) is particularly instructive. Although clauses introduced by a complementizer (i.e., CPs) routinely function as clausal subjects, unlike DPs they cannot invert with an auxiliary in questions:

(5)  a. That you won the tournament didn’t help us.
     b. *Did that you won the tournament help us?

The fact that PossGPs appear only in ordinary nominal slots and behave like nominal phrases with respect to subject/auxiliary inversion suggests that they are, quite simply, nominal phrases (DPs or NPs). That they contain a possessive phrase provides additional support for this analysis, since possessive phrases otherwise only combine with nominal phrases.

On the other hand, however, in terms of their internal syntax, sanctioning a possessive phrase subject is the only nominal characteristic of PossGPs. On the whole, they have the internal syntax of a VP, since, for example, they take adverbial rather than adjectival modifiers (6a); they can contain auxiliary verbs, which otherwise only take VP complements (6b); and, unlike other nominal phrases (6c), do not allow the sub-phrase following the possessive phrase to undergo ellipsis (6d).

(6)  a. I would appreciate your quietly/*quiet leaving the room
     b. His having won the tournament might be of some benefit to us.
     c. I was amazed at Stacy’s [eagerness], and at Morgan’s Øi too.
     d. *I was amazed at Stacy’si [being so eager]i and at Morgan’s Øi too.

While there are various potentially substantive differences at the level of precise detail, analyses of PossGPs generally share the idea that the gerund somehow counts as both a V and an N, for which reason the phrase that it projects has both verbal and nominal properties. According to Lapointe (1993), the head gerund is a zero-level category labeled N/V. Such dual-category lexical items are analyzed as projecting phrasal nodes for each of the two categories that they belong to, as shown in Figure 1.

![Figure 1: Lapointe’s analysis of PossGPs](image)
Bresnan (1997) provides a Lexical-Functional Grammar analysis, according to which distinct c-structure categories may share the same head at f-structure. For example, a gerund with a single f-structure may serve as the head N of an NP as well as the “extended” head of a VP that is the sister of that N, as shown in Figure 2.

![Figure 2: Bresnan’s analysis of PossGPs](image)

Given the explanatory centrality of movement in the Principles and Parameters framework (Chomsky 1981, 1986) and the associated possibility of syntactic affixation (Baker 1985, 1988), it is not surprising that Abney (1987) analyzes PossGPs as having an external NP layer headed by an abstract nominal affix (ING) and an internal VP layer headed by a verb. The –ing verb simply undergoes routine head movement, allowing the ING affix to adjoin to lexical material, as shown in Figure 3. The overall phrase is a DP, by virtue of the fact that NPs typically occur as the complement of a D.

![Figure 3: Abney’s analysis of PossGPs](image)

Employing the theoretical framework of Head-Driven Phrase Structure Grammar (Pollard and Sag 1994), Malouf (2000a, 2000b) analyzes PossGPs as phrases headed by a verbal gerund (VGer), which is neither a noun nor a verb but which shares properties of both. Like other heads, a VGer projects a phrase of the same category as it, in accordance with the endocentricity constraint on phrase structure, as shown in Figure 4. The possessive form of the specifier, the distribution of the overall construction, and the VP properties of the VGer + complement string are attributed to (a) VGerP and NP being two different types of the same construction, i.e., a noun-possessor construction; and (b) VGerP and V being two different types of the same head-complement construction. Under Malouf’s approach to mixed categories, the –ing head of a PossGP belongs to a unique syntactic category; but the phrases that it projects belong to two different broader categories, one whose prototype is NP and another whose prototype is V.
Analyses of these kinds have been shown to be useful for certain constructions found in languages other than English. The most common kind of mixed-category construction involves nominal verbs (N/V), as in Korean (Lapointe and Nielsen 1996), Quechua (Lefebvre and Muysken 1988), Hebrew (Hazout 1995), Italian (Zucchi 1993), Kikuyu and Japanese (Bresnan 1997), and other languages (Malouf 2000b: Ch. 3). However, adjectival verbs (A/V) have also been argued to exist in German (Drijkoningen 1992, Bresnan 1997). It seems to be an open question whether a larger range of the logically possible set of mixed categories might exist.

A key claim of the present study is that because they behave in many ways analogously to PossGPs, having the external distribution of DPs and the internal syntax of PPs, English PrepSCs, such as the italicized phrase in (7), exemplify yet another kind of mixed-category phrase.

(7) Can you imagine the pope in a bikini?

Following Lapointe’s (1993) approach to mixed-category phrases, but without embracing all of his assumptions and representational conventions or explicitly precluding alternative mixed-category approaches, the proposed analysis is that PrepSCs are headed by a lexically specified dual-category, i.e., D/P. The word in, for example, comes in at least two varieties:

\[ \text{in}^1 \quad \text{Lexical category: P; has complement only} \]
\[ \text{in}^2 \quad \text{Lexical category: D/P; has complement and subject} \]

Similarly, an –ing-affixed word such as quitting comes in at least two varieties:

\[ \text{quitting}^1 \quad \text{Lexical category: V; has ordinary DP subject} \]
\[ \text{quitting}^2 \quad \text{Lexical category: N/V; has possessive subject} \]

I assume, following Lapointe, that a word of lexical category X/Y projects both an XP (external) and a YP (internal). Adopting the lexical sharing idea of Wescoat 1994 and Bresnan 1997, I further assume that in the associated phrase structure a dual-category word is simply the head of both phrases that it projects, as shown in Figure 5.

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2 As discussed in §5, Lapointe and Nielsen also identify a kind of Korean gerund that seems to be best analyzed as N/I(nfl).
3 In Romance languages determiners and prepositions actually do combine into single words, as, for example, in Spanish al parque ‘to the park’ (= a ‘to + el parque ‘the park’) or Portuguese na escola ‘at the school’ (= em ‘at’ + a escola ‘the school’). One would presumably want to analyze such P/D contractions as words that count as both the head of a PP and the head of the DP embedded as a complement in that PP. The contraction phenomenon could be attributed either to some movement within the phrase-marker (D moves to P, for example) or to the existence of a P/D category, which would allow a lexically contracted word to head two phrases.
In the following section, I explore in some detail the properties of PrepSCs that any analysis should be able to account for and which provide substantial motivation for a dual-category analysis of the prepositions that head such phrases.

3 Motivation for the dual-category analysis

There are four key claims of the proposed analysis, for which supporting evidence is needed:

- A PrepSC is a phrasal constituent, rather than, for example, a DP + PP string that does not constitute a phrase.
- There is an embedded PP headed by the preposition around which the PrepSC is built.
- The overall phrase headed by the preposition is nevertheless a DP.
- The head of the overall DP is not distinct from the preposition heading the embedded PP, i.e., is both a D and a P.

After discussing the key reasons for claiming that PrepSCs constitute a construction type that is distinct from the superficially similar construction consisting of an NP with a postnominal PP modifier, as in the case of the italicized DP in (8), I present the supporting evidence for the above claims in the context of a broader discussion of the syntactic properties of PrepSCs.

(8) I know the guy in the bikini.

3.1. The PP in a PrepSC is not a sub-constituent of an NP

It is important to make clear, to begin with, that the PP of PrepSCs is not a noun modifier contained in an ordinary NP, as noted in Aarts 1989. A PP that modifies a noun within an NP, as in (9a), cannot combine with a pronoun, as shown by (9b). A pronoun may, however, appear within a PrepSC, as shown by (9c).

(9) a. I came with the guy from my physics class.
    b. *I came with him from my physics class.
    c. I can’t imagine him in a kimono.

Since the PP in a PrepSC follows a complete DP, rather than being contained within it, as shown in Figure 5, there is no reason that a pronoun cannot substitute for that DP.

PrepSCs also contrast with phrases built on NPs with respect to the possibility of determining verb agreement:
(10) a. More criminals behind bars is the answer.
    b. More people with long hair are/is in my class.

The copula agrees with people in (10b) because this N is the head of the NP functioning as the complement of the head of the overall DP. The PP with long hair is a N-modifying constituent embedded within the NP. The fact that the copula in (10a) does not agree in number with the noun criminals clearly suggests that this phrase has a different structure than the subject of (10b) and that criminals is not the head of an NP containing behind bars as an N-modifying sub-constituent.

Whereas a PP-modified noun heading an NP can be modified by a relative clause following but not preceding the PP, as shown by the contrast between (11a) and (11b), the N in a PrepSC can only have a relative clause modifier that precedes its PP sub-constituent, as shown by (11c) vs. (11d).

(11) a. I know the guy from your physics class that wrote that book.
    b. *I know the guy that wrote that book from your physics class.
    c. *I can’t imagine the teacher in a bikini that just got hired.
    d. I can’t imagine the teacher that just got hired in a bikini.

The grammaticality of (11d) and the ungrammaticality of (11c) presumably follow from the fact that N-modifying relative clauses must be at the right periphery of the NP that the modified N heads and the PP following the N in a PrepSC is not a sub-constituent of the NP headed by the N, whereas a modifying relative clause is, as illustrated in Figure 6.

![Figure 6](image)

**Figure 6:** Constraint on relative clause placement in PrepSC vs. in NP containing a PP

Finally, whereas an adjective within an ordinary NP can modify conjoined N-headed sub-constituents, as shown by (12a), such is not possible with phrases of the small-clause type, i.e., crazy in (12b) can be interpreted as modifying vampires but cannot be interpreted as modifying both vampires and werewolves.

(12) a. I meant the crazy [vampires with long hair and werewolves with sharp teeth].
    b. *I can’t imagine the crazy [vampires in kimonos and werewolves in bikinis].

Under the proposed PrepSC analysis, vampires in kimonos is not a sub-constituent of the overall PrepSC that can be conjoined with a like string. The only possible analysis of (12b) is that the small clause the crazy vampires in kimonos is conjoined with the like small clause werewolves in bikinis. It follows that the adjective crazy can have scope only over vampires in kimonos.
3.2. PrepSCs are phrasal constituents

Various standard kinds of evidence for phrasal constituency provide support for the fundamental claim that PrepSCs are phrases. They can, for example, be focused on in the pseudocleft construction (13a), like DPs and PPs in general (13b-c), and unlike adjacent strings of DP + PP that do not form a phrasal constituent (13d).

(13) a. What I can’t imagine is the pope in a bikini.
    b. Where I want to go is to the beach.
    c. What I want to buy is a new car.
    d. *What I want to put is the car in the garage.

Like certain other kinds of phrases, PrepSCs can also antecede a demonstrative pronoun (14) and be the subject-related null complement in the tough-movement construction (15).

(14) a. You might be able to picture him in a kimono, but I can’t picture that.
    b. They might say that he’s strong, but people don’t really believe that.
    c. *You might put the car in the garage, but I won’t put that.
(15) a. All these criminals behind bars is difficult to imagine.
    b. These books will be difficult to read.
    c. *All these cars in the garage will be difficult to put.

Finally, PrepSCs can be the complement of prepositions such as with, as in With all the criminals behind bars, we don’t have to worry about safety. Since prepositions otherwise can only have at most a single complement, which—like all complements—is a phrasal constituent, it follows that PrepSCs must be phrasal constituents.

While it is true that some DP-particle combinations can be PrepSCs in certain contexts, as evidenced by their ability to occur as complements of with (16a vs. b), it does not follow that they are PrepSCs in verb-particle contexts, as has been widely assumed for both DP-particle combinations that have corresponding true PrepSCs (Aarts 1989) and for DP-particle combinations in general (e.g., Kayne 1985, Guéron 1990, Dikken 1995, Haegeman and Guéron 1999).

(16) a. He turned the lights off/With the lights off we’ll be able to sleep.
    b. That really pissed my brother off/*With my brother off we couldn’t go near him.

In fact, in the verb-particle context, DP-particle combinations show no evidence of being phrasal constituents, whether they are of the turn off type or not, as they cannot be focused on in the pseudocleft construction, antecede a pronoun, or be the subject in the tough-movement construction:

(17) a. *What you need to turn is the lights off.
    b. *What that pissed was my brother off.
(18) a. *I turned the lights off and she turned that too.
    b. *That could have pissed my brother off, but I don’t think it really pissed that.
(19) a. *All the lights off will be difficult to turn.
    b. *My brother off will be difficult to piss.

One might potentially attribute the ungrammaticality of (17)–(19) to the fact that verb-particle combinations of these kinds are idioms (Fraser 1976) and phrases that are pieces of idioms are more syntactically restricted than other phrase types. Such an explanation would fail, however, to extend to non-idiomatic DP-particle combinations, such as take the trash out and leave a note behind which also fail to exhibit phrasal properties:
(20) a. *What you need to take is the trash out.
b. *You wanted me to take the trash out but I couldn’t take that.
c. *All the trash out will be difficult to take e.
(21) a. *What you need to leave is a note behind.
b. *You wanted me to leave a note behind, but I couldn’t leave that.
c. *A note behind will be difficult to leave e.

In short, there is no reason to believe that DP-particle strings in verb-particle contexts are PrepSCs of the kind of concern here.

3.3. PrepSCs contain an embedded PP

As is well known (e.g., Jackendoff 1973), one of the key distinguishing characteristics of PPs (with locative or motion semantics) is their ability to combine with intensifier right, as shown by the following examples.

(22) PPs with intensifier right
   a. I took these books right off the shelf.
   b. He drove the car right into the garage.
   a. *We tried to right drive the car.
   b. *She seems right fond of him.
   c. *They took it away right quickly.
   d. *his right withdrawal of books from the shelf

Given that they can be built around what are otherwise prepositions with locative/motion semantics, it is not surprising that intensifier right can occur internal to PrepSCs:

(24) With him right out of jail, we headed for the hills.

The combinatorial properties of the heads of PPs vary only within a certain range. Off and out, for example, can have a DP complement (25), a PP complement (26), or no complement at all (27), but not a CP complement (28).

(25) a. The car was going off [DP the road].
   b. The boy was going out [DP the door].
(26) a. His thoughts were off [PP on a tangent].
   b. He was out [PP in the cold].
(27) a. The lights were off.
   b. The runner on third is going to be out.
(28) a. *His thoughts were off [CP that nobody understood].
   b. *He was out [CP that we could see].

These words have the same combinatorial properties in the PrepSC context, as shown by the following examples, suggesting that they are in fact Ps.

(29) a. With this car off [DP the road], we’ll be able to finish the job more easily.
   b. With all the children out [DP the door], we can close up the classroom.
(30) a. I can certainly picture him off [PP on a tangent again].
   b. I can picture him out [PP in the cold].

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4 In certain dialects, of course, intensifier right does combine with APs and AdvPs.
(31) a. Imagine all these lights off.
   b. I can imagine the runner on third out.

(32) a. *Picture this off [CP that nobody understands].
   b. *Imagine him out [CP that we can see].

If off and out are Ps in (29)–(31) and Ps by definition head a PP containing them and whatever complements they may have, it follows that the PrepSCs in (29)–(31) either are PPs or contain PPs.

3.4. PrepSCs have external syntax of DPs

It would be problematic to maintain that PrepSCs are simply PPs, since they do not have the same distribution as PPs. For example, although the complement of the verb imagine can be a PrepSC, CP, or DP (33), it cannot be an ordinary PP (34).

(33) a. I can’t imagine [SC him in a kimono].
   b. I can’t imagine [CP that I would do that].
   c. I can’t imagine [DP a worse situation].

(34) a. *I can’t imagine [PP in a kimono].
   b. *I can’t imagine [PP about a man in a kimono].

Furthermore, although a subjectless PP can occur as an adverbial modifier of a VP, such as go to school, as in (35a), a PrepSC can only serve this kind of function if it is embedded within a larger PP headed, for example, by with (35b vs. c).

(35) a. I went to school [PP in a kimono].
   b. We went to school [PP with my sister in a kimono].
   c. *We went to school [SC my sister in a kimono].

There are also certain prepositions, such as without and about, that can have a PrepSC complement but cannot have a PP complement:

(36) a. We can’t go on without [SC him on the team].
   b. I was thinking about [SC you on a motorcycle].
   c. *He can’t go on without [PP on the team] [PP with a better job].
   d. *I was thinking about [PP on a motorcycle] [PP with a motorcycle].

In short, PrepSCs do not occur in typical PP positions. Rather, as amply illustrated above, they occur in typical DP positions, occurring as clausal subject or direct object or as the object of a preposition. Although CPs can also occur in these positions, there are at least three ways in which PrepSCs are distinguishable from CPs in distributional terms. First, prepositions such as without and about, which can have PrepSC complements, cannot have ordinary CP complements.5

(37) a. *We can’t go on without [CP that he be/is on the team].
   b. *We can’t go on without [CP for him to be on the team].
   c. *I was thinking about [CP that you were riding a motorcycle].
   d. *I was thinking about [CP for you to be on a motorcycle].

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5 Other kinds of what are presumably small clauses, such as ACC-ing phrases, can also occur as complements of such prepositions (We can’t go on without him being on the team, I was thinking about you having a chance to do that). A suggestion as to why this might be so is discussed in § 4.
Second, whereas CPs that can appear in subject position can also appear in postverbal position in the “extraposition” construction, as illustrated by (38), PrepSCs, like ordinary DPs, resist extraposition, as illustrated by the examples in (39).6

(38) a. For him to be on the team would suck.
   b. It would suck for him to be on the team.

(39) a. His opinion about the team sucks.
   b. *It sucks his opinion about the team.
   c. Him on the team would suck.
   d. *It would suck him on the team.

Third, like DPs and unlike CPs, PrepSCs can appear after the initial auxiliary in subject-AUX inversion structures:

(40) * Inverted CP:
   a. That he’s on the team could cause problems.
   b. *Could that he’s on the team cause problems?

(41) Inverted DP OK:
   a. A new team member could cause problems.
   b. Could a new team member cause problems?

(42) Inverted PrepSC OK:
   a. Someone new on the team could be the answer.
   b. Could someone new on the team be the answer?

3.5. Special distinguishing features of PrepSCs

Although PrepSCs, overall, behave mostly like DPs, there remain certain important differences between the two kinds of phrase. There are at least two ways in which PrepSCs behave more like clauses than DPs, based on the relevant distinctions discussed in Abney 1987 and Malouf 2000b. To begin with, DPs differ from embedded clauses with respect to quantifier scope. The examples in (43) show that every can be interpreted with either wider or narrower scope than the quantified subject of the clause, i.e., someone. That is to say, the interpretation of (43a), for example, is either that there was a particular unspecified person that evaluated each student or there was for each student a person (possibly varying across students) that evaluated her or him.

(43) a. Someone evaluated every student.
   \[ \forall x \exists y \text{ evaluate}(x, y) \]
   \[ \exists y \forall x \text{ evaluate}(x, y) \]
   b. Someone evaluated every student’s performance.
   \[ \forall x \exists y \text{ evaluate}(x, \text{ perform}(y)) \]
   \[ \exists y \forall x \text{ evaluate}(x, \text{ perform}(y)) \]

Crucially, the ambiguity remains even when the quantified DP is in an embedded specifier/subject position within the direct object DP, as shown by (43b).

By way of contrast, a quantified subject of an embedded clause in direct object position can only have narrow scope:

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6 Examples such as (39b) may be acceptable with a special timing and intonation contour, specifically with a pause after sucks and an afterthought treatment of his opinion about the team (see Pullum 1991 for an illuminating discussion of the distinction). In saying that (39b) and (39d) are ungrammatical, the claim here is that they are ungrammatical as examples of “ordinary” extraposition.
(44) Someone noticed that every student was in a kimono.
\[
\begin{align*}
&\forall x \forall y \text{notice}(x, \text{be-in-kimono}(y)) \\
\end{align*}
\]

In terms of quantifier scope possibilities, PrepSCs behave like embedded clauses rather than DPs, as only narrow scope is possible for the subject of a PrepSC in direct object position:

(45) Someone imagined every student in a kimono.
\[
\begin{align*}
&\forall x \forall y \text{imagine}(x, \text{in-kimono}(y)) \\
\end{align*}
\]

The proposed analysis, according to which a PrepSC is a kind of DP, does not in and of itself provide an explanation for the clause-like behavior of PrepSCs with respect to quantifier scope. There is, however, a relatively straightforward explanation that is made possible by the proposed analysis. The idea is that the quantifier scope constraint is ultimately not a simple syntactic category restriction. What embedded clauses and PrepSCs have in common is that they contain a predicate (verb/auxiliary verb/predicative preposition) that heads a phrase with a subject, i.e., a DP in their specifier position.\(^7\) The internal structures of clauses and PrepSCs differ from the internal structure of a DP with a possessive phrase, as shown in Figure 7. Clauses and PrepSCs can be considered two different kinds of a type of syntactic/semantic construction that we can call a generalized clause, defined as in (46a).

(46) a. **Generalized clause**: predicate-headed phrase containing a subject (= XP in specifier position).
   b. **Quantifier scope constraint**: Quantifier scope is restricted to generalized clauses.

![Figure 7: Clauses and PrepSCs vs. possessive DPs](image)

A PrepSC is a generalized clause specifically by virtue of the fact that it is a DP that is headed by a predicative D, i.e., a preposition that is both a P and the head of the external DP. An ordinary DP with a possessive phrase in its specifier position, on the other hand, is not a generalized clause, since its head D is not predicative, being instead a “grammatical” marker of genitive case.

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\(^7\) I assume that in a clause with one or more auxiliary verbs, the first auxiliary verb is the head of the phrase whose specifier position is occupied by the clausal subject; and in a clause with no auxiliary verb the main verb “counts” as the head of the VP as well as the head of the overall clause (possibly by the same formal mechanism as the head of a PrepSC “counts” as both the head of the embedded PP and the head of the overall DP).
A second clause-like characteristic of PrepSCs is that, unlike DPs, they cannot undergo what Ross (1967) called “pied-piping” in restrictive relative clauses. (47a) illustrates a case of pied-piping wherein the entire DP containing the possessive wh determiner whose is fronted.

(47) a. This is the person \[DP whose inclusion on the team\] nobody objected to t.
    b. *This is the person \[PrepSC who(m) on the team\] I can’t imagine t.
    c. *This is the person \[CP for who(m) to be on the team\] nobody wanted t.

It is not, however, possible to pied-pipe either a CP (47c) or a PrepSC (47b). The generalization, under the proposed analysis, is that generalized clauses cannot be pied-piped.

Giving primary importance to the clause-like properties of PrepSCs, one might claim that they are tenseless clauses (IPs), headed by a word of category I/P, as shown in Figure 8.

Although this analysis would, of course, facilitate an account of the clause-like behavior of PrepSCs with respect to quantifier scope limitations and pied-piping and would account both for the internal PP character of the construction and the lack of any I-head distinct from the P, it is unclear how the DP-like distribution of the overall construction might be accounted for. Nonfinite IPs that are not embedded in a CP can occur in subject and direct object positions, as illustrated by the examples in (48).

(48) a. I would like \[IP him/PRO to go home\].
    b. \[IP PRO to finish on time\] would be nice.

However, nonfinite IPs, unlike PrepSCs, are excluded from clausal subject position if their subject is overt (49), are excluded from the complement position of DP-selecting prepositions such as with (50), and are not excluded from the postverbal position in the it-extraposition construction (51).

(49) a. *\[IP Those guys to finish on time\] would be nice.
    b. \[PrepSC Him on a motorcycle\] would be something to see.

(50) a. *With \[IP him/PRO to be on the bench\], we could have problems.
    b. With \[PrepSC him on the bench\], we could have problems.

(51) a. It would suck \[IP PRO to be on the bench\].
    b. *It would suck \[PrepSC Shaq on the bench\].

Since the IP analysis of PrepSCs would entail arbitrarily excepting PrepSCs from otherwise systematic constraints and licenses pertaining to IPs, the DP analysis seems preferable overall.

On a final note, PrepSCs have a somewhat more restricted distribution than DPs (as well as CPs). For example, the verb regret can have either a DP or a CP complement, but not a PrepSC complement, even if it has essentially the same semantics as the corresponding DP or CP, as illustrated by the following examples:
Similarly, a DP can function as the complement of about in the context of the verb talk, although a semantically similar PrepSC cannot:

(53)  a. Everyone was talking about his kimono.  
     b. *Everyone was talking about him in a kimono.

Under the assumption that co-occurrence restrictions between heads and complements can be sensitive to the syntactic category and semantics of the head of the complement, the claim that the head of a PrepSC (i.e., a D/P) is syntactically and semantically distinct from the head of ordinary DPs provides a basis for explaining the distributional idiosyncrasies of PrepSCs.

Regret, for example, could be said to restrict its complement to being, among other things, a phrase headed by a tensed C, an ordinary D, etc., but not a D/P. The central idea of the proposed analysis, i.e., that a PrepSC is a DP with a preposition as head makes it possible to account for the ways in which PrepSCs behave like DPs as well as the ways in which they do not.

3.6. Summary

The syntactic properties of PrepSCs can be summarized as follows.

A. PrepSCs are phrasal constituents built around a preposition.
B. The P-modifier right can be adjoined to the P + complement string of a PrepSC, as with PPs in general.
C. The head P of PrepSCs has the same complementation possibilities as Ps in general.
D. PrepSCs appear in typical DP positions, including complement of V and complement of P positions where PPs are excluded, and fail to appear in typical PP positions.
E. A PrepSC can be the complement of certain Ps, which otherwise only have DP complements.
F. Like DPs and unlike clauses, PrepSCs cannot occur in the postverbal position of the ordinary it extraposition construction.
G. Like DPs and unlike CPs, PrepSCs can invert with auxiliaries in questions.
H. As with clauses but not DPs, quantifiers in the specifier position of an embedded PrepSC cannot have wide scope vis-à-vis quantifiers in the main clause.
I. As with clauses but not DPs, pied-piping of PrepSCs with a wh-subject is not allowed.
J. PrepSCs have a more restricted distribution than both DPs and CPs.
K. PrepSCs have a different distribution than nonfinite IPs.

According to the dual-category DP analysis, prepositions such as in and behind may belong to the syntactic category D/P, in which case they project not only a PP node but a higher DP in which the subject that they are predicated of appears in the specifier position. (A) is trivially accounted for, since the preposition (D/P) is the head of what is necessarily a phrasal constituent. (B) and (C) are explained by the fact that the head of the PrepSC is a preposition, which projects an ordinary PP with all of the usual properties of PPs. (D)–(G) and (K) are accounted for by the claim that the overall PrepSC is a DP. (H)–(J) are accounted for by the

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8 This assumption is independently motivated by facts such as the following: the complement of the noun ban must be a PP whose head is specifically on (a ban on smoking/*of smoking), the complement of try must be headed by the [–tense] auxiliary to or an –ing verb (try to work more/*try working more/*try work more), the complement of the D these must be an NP headed by a plural noun (these books/*these book), etc.
claim that although the PrepSC is a DP, its head is a predicative preposition, semantically and syntactically distinguishable from the head of other kinds of DPs.

4 Some problematic conceivable alternatives

There are, of course, other conceivable ways of accounting for many of the properties of PrepSCs. For example, focusing on the general observation that this kind of phrase seems to be headed by a preposition and to have a subject, the simplest analysis would be that a PrepSC is simply a subject-containing PP (as in Stowell 1983), as illustrated in Figure 9.

Figure 9: Simple small clause analysis of PrepSCs

It should be evident that this approach would fail to account for PrepSC properties (D) and (E) from the list in §3.6, i.e., the various ways in which PrepSCs behave like DPs and fail to behave like PPs.

A second problem for this “simple” small clause analysis is that it fails to account for the fact that the inner P + complement string behaves like a PP, i.e., a maximal projection of P, with respect to wh-movement:

(54) In what kind of bikini can you picture the pope t?

Under standard analyses of wh-movement, a phrase of a kind that would ordinarily occupy a specifier position (i.e., a maximal projection) occupies the specifier position of CP and is related to an empty category (or trace) in the canonical position for such a phrase. The simple small clause analysis would have to allow for the unprecedented possibility of a non-maximal projection in the specifier of CP position, as shown in Figure 10. Thus, the wh-movement possibility illustrated by (54) provides a further kind of support for the dual-category analysis of PrepSCs, under which the preposition and its complement constitute a maximal projection of P.
In order to improve the simple small clause analysis in such a way as to yield an account of the DP behavior of the construction, it might be assumed that the PP small clause is the complement of an empty D, as shown in Figure 11.9

There are, however, several difficulties with such an analysis. First, it encounters the same problem as the simple small clause analysis with the fact that the P + complement string can undergo wh-movement. Under this analysis, this string is not a maximal projection. Second, it is unclear how one might account for the fact that PrepSCs have a more restricted distribution than DPs in general, i.e., PrepSC property (I). This analysis puts PrepSCs in a category of DPs with null heads and, therefore, in a broader category of phrases with null heads; but these don’t appear to be categories that correlate in any way with the distribution of PrepSCs. Third, why the D head of these DPs must be null and why only this null D can have a PP complement remain mysteries.

Yet another conceivable analysis would take PrepSCs to be a version of the ACC-ing construction with a null copula as head. Assuming that the overall phrase would be an IP (and abstracting away from the orthogonal question of whether the copula might also be a V), this analysis would give a representation to PrepSCs like that shown in Figure 12.10

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9 Or, alternatively, there is simply a DP node with no head dominating the PP node. This alternative would not only face the same problems as the empty D analysis, but would also entail a violation on the general endocentricity constraint of X-bar theory.

10 An analysis of this sort for small clauses is given in Haegeman and Guéron 1999:142-143. The specific idea is that small clauses are IPs with the subject in the specifier of IP position and with an AP, VP, or some other phrase embedded as the complement of an empty I node. If there were a copula, under this approach it would occupy the I node; thus, small clauses are a kind of ACC-ing construction with an empty copula.
Figure 12: Empty copula analysis of PrepSCs

The primary motivation for this approach would be that PrepSCs appear to be paraphrases of corresponding ACC-ing phrases with a copula as head:

(55) a. We can’t go on without him (being) on the team.
    b. I can imagine him (being) in a kimono.

Quite apart from the problem of accounting for the DP-like distribution of PrepSCs, there are two serious problems with such an analysis. To begin with, copula-headed ACC-ing phrases can appear in places that PrepSCs cannot. For example, the ACC-ing phrase can be a complement of regret or talk about, whereas a corresponding PrepSC cannot:

(56) a. I regret him being on the team.
    b. *I regret him on the team.
(57) a. Everyone talked about him being in a bikini.

Under the zero-copula analysis the different distribution of the two kinds of phrases could not be attributed to categorial or semantic differences between the heads of the two kinds of phrases, as is possible under the dual-category analysis. It would apparently have to be attributed, mysteriously, to whether the head is null or not.

A second problem is that copula-headed ACC-ing phrases can have a null (PRO) subject, whereas PrepSCs cannot, as illustrated by the following examples.11

(58) a. You can’t win without him/PRO being on the team.
    b. You can’t win without him/*PRO on the team.
    c. I can imagine him/PRO being in a bikini.
    d. I can imagine him/*PRO in a bikini.

If PrepSCs are assumed to be headed by a null copula, it would be necessary to posit a constraint with the effect of prohibiting null subjects of this kind from the context of a null I or a null copula. Such an otherwise unmotivated constraint is problematic, however, in that PRO subjects are sanctioned as subjects of a null I (= “gapped” to) and a null copula, as illustrated by the following example.

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11 One could conceivably claim that PRO is disallowed in ACC-ing phrases and that (58a), for example, illustrates a PRO subject of a PossGP. There are, however, contexts in which ACC-ing phrases are allowed but the corresponding PossGPs are marginal at best (for example, We made it there without anyone/*anyone’s being seen) and PRO is fine in such contexts (We made it there without PRO being seen).
We asked Jill ![IP PRO ![i to ![v be on this team]] and Bill ![IP PRO ![i Ø ![v Ø on that team]].

Assuming that ACC-ing phrases are headed by a (copular) verb rather than a preposition, the differences illustrated by (58) can be attributed to a constraint, apparently needed independently, with the effect of limiting PRO subjects to the context of a verbal predicate.12

ACC-ing phrases and, for that matter, adjectival small clauses (AdjSCs) do in fact have properties that are quite similar to those of PrepSCs. For example, both exhibit such phrase-like characteristics as being able to be the focus in the pseudocleft construction (60a), both can occur as the complement of prepositions such as with (60b), and both typically appear in subject and direct object positions (60c-d).

(60) a. What I can’t imagine is the pope wearing a bikini/the pope naked.
   b. With him being on the bench/him unhappy, we could have a problem.
   c. Him sitting in jail/him unhappy about this is not something we expected.
   d. I can’t picture him leaving us/him worried about us.

It seems that ACC-ing phrases and AdjSCs might be amenable to the same kind of dual-category analysis as PrepSCs. They would differ only in that their predicative heads, which determine the category of the innermost phrase, would be V and A, respectively, as shown in Figure 13. As with PrepSCs, the clause-like properties of such phrases (Abney 1987, Malouf 2000b) would be accounted for by the fact that they have a predicative head and are, therefore, generalized clauses.

The ability of ACC-ing phrases to have a PRO subject (58c) unlike PrepSCs (58d) and AdjSCs (I can imagine him/*PRO naked) could be attributed to the aforementioned verbal predicate constraint on PRO.

5 Conclusions

The dual-category approach to phrase-structure can be profitably applied to PrepSCs, and possibly other types of SCs. Such an analysis makes it possible to account straightforwardly for the complex syntactic properties of PrepSCs without abandoning fundamental X-bar theory principles, such as the endocentricity constraint, and without positing superfluous empty structure.

12 For example, given the VP-internal subject hypothesis (Kuroda 1988, Koopman and Sportiche 1991), one could assume that PRO either actually occupies only the specifier of VP position within an IP or occupies that position in addition to the specifier of IP position, and is therefore the subject of a phrase headed by a V. Alternatively, PRO is limited to the specifier position of a phrase headed by a verbal (+V) predicate (= main verb or tense/aspect/modal auxiliary, including to).
Although the general dual-category idea of Lapointe 1993 is supported in a novel way by the evidence from PrepSCs, two of the constraining principles for dual categories that Lapointe proposes are not supported. According to one of these proposed principles, only major lexical categories (N, V, A, P) can be combined into dual categories; D, being a functional category, is excluded. Whether or not such a constraint exists is, of course, an empirical question. Lapointe and Nielsen (1996) independently suggest that N/I(nfl) is a possible dual category, based on evidence from a kind of gerund phrase in Korean that displays mixed-category properties but differs in certain ways from the N/V gerund. English PrepSCs add further evidence for abandoning the major-category constraint on dual categories.

Lapointe’s second constraining principle is that dual categories necessarily result from a visible morphological process, such as -ing affixation. The problem with this idea is that it lacks solid empirical or theoretical motivation. In fact, it is a rather unexpected constraint, given the way languages otherwise work with respect to category shifting processes. Such processes are not generally restricted by any overt morphology requirement. Causative verbs, for example, can be related to inchoative counterparts either by overt affixation, as in Southern Tiwa, Japanese, Chichewa, etc. (Baker 1988), or by simple category shift as in English (The door opened/The boy opened the door). More importantly, category shift without overt affixation is the most common English mechanism for basic lexical category change, as illustrated by the examples in (61) (see, for example, Clark and Clark 1979, Farrell 2001).

(61) a. I cleared the snow with a [N shovel]/I will [V shovel] the snow from the driveway.
b. The door was [A open]/I will [V open] the door.

(62) a. Everyone was [V singing]/Their [N singing] was beautiful.
b. It was a [A surprising] development/They are always [V surprising] us.
c. We are unhappy about their [N/V quitting] the team/them [D/V quitting] the team.
d. They are [V quitting] the team.

Given that –ing affixed words can shift between numerous lexical categories, as in (62), it is far from clear that it can be assumed that –ing affixation itself is responsible for any category shift, including the shift to N/V. A plausible alternative analysis is that –ing affixation has only a semantic effect on bases, i.e., it makes process-designating words temporally unbounded (Langacker 1987: 258–262), and the lexical category shifts that occur are of the same kind that occur in the kinds of cases illustrated by (61), i.e., they involve category-shifting of –ing-affixed words rather than category-shifting due to –ing affixation. There is no real reason to believe that –ing affixation is in any way inherently related to the dual-category (N/V) status of the heads of PossGPs. The lack of supporting evidence for the claim that –ing affixation is the mechanism by which N/V words are created seriously undermines the related claim that dual categories necessarily depend on some visible morphological process.

In any case, however troubling the D/P analysis of PrepSCs may be for Lapointe’s vision of how dual categories might be theoretically constrained, this analysis is arrived at primarily on empirical grounds of the same kind that motivate a dual-category analysis of the English PossGP construction. The primary motivation for the dual-category analysis of PossGPs in English is not that it conforms to some a priori notion of what may occur in languages. Rather, it provides a straightforward explanation for the otherwise mysterious syntactic behavior of the construction. By the same token, the syntactic behavior of PrepSCs strongly suggests that they are a kind of mixed-category construction and, hence, that there is a larger range of mixed-category construction types in English than one might have otherwise supposed.

Why dual-category words, such as N/V, D/P, D/A, etc., exist at all is a question that remains to be answered. Although an answer can probably be at best speculative at this point, there is a plausible line of explanation for why small clauses, at least, would necessarily be headed by dual-category words. PrepSCs have an internal subject for their predicative PP sub-constituent, whereas ordinary PPs are complete phrases that are semantically related to an external DP (or other phrase). DPs and IPs (i.e., clauses) have long been identified as a natural
class, by virtue of their ability to have their specifier position occupied by a subject and their corresponding similar behavior with respect to principles of anaphor binding, for example. Suppose there is a constraint, operative at least in English but possibly universally, with the effect of limiting subjects to occurring, at least on the surface, in the specifier position of a phrase projected by a functional head, including at least D and I. Given this constraint, a PP, AP, or VP could be predicated of a subject within the phrase projected by their head only if a DP (or IP) were also projected, so as to provide a legitimate specifier position for a subject. Of course, this line of explanation leaves unanswered the question of why subjects might be limited to specifier positions of phrases projected by functional categories; but this is a question that arises independently of small clauses.

References


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