

*Constraints on Reflexivization**

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Abstract

Discussing reflexivization via autonomous morphemes (e.g. via *self*-anaphora like English *herself*, French *lui-même* or Hebrew *acmo*, or via ‘pronominal’ morphemes such as German *sich* or French *se*), I show that any form of lexical or syntactic bundling via adicity reduction or any form of predicate reflexivization (e.g. via *self* incorporation) in these languages is too strong to be the general mechanism involved, favoring analyses in terms of direct covaluation (via the antecedent binding the anaphor) as in the classical view. This means in particular that what counts as an anaphor cannot be related to *self* incorporation (into predicates), raising the question of how to *derive* why anaphors are anaphors, a question discussed in [Charnavel and Sportiche \(2021\)](#). I also discuss some (limited) boundary conditions on analyses for incorporated English *self*- or French *auto*-, and explore syntactic (as opposed to lexical) analyses for predicates prefixed with *self*- or *auto*-, as well as for inherently reflexive verbs.

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1 Introduction

1.1 The Problem

Two analytico-theoretical questions are tightly intertwined: why are anaphoric expressions such as reflexives anaphoric, and what exactly is the mechanism by which a reflexive meaning arises. For example, under some views, a reflexive DP argument of a predicate is in fact lexically defined as a function taking this predicate as argument, and turning it into a reflexive predicate. In turn, this has consequences on how to understand why such expressions must be in a local relation with their antecedents. The view just mentioned for example, entails that the reflexive and its antecedent must be co-arguments of the predicate in question.

In what follows, I primarily discuss reflexive pronouns in English and French, and to a lesser extent German and Hebrew, showing why some widely held analyses (diagonalizing adicity reduction, or predicate reflexivization via *self* movement or incorporation) cannot be right. More precisely, such analyses cannot be right as sole analyses: as such analyses are more restrictive than what is needed, it is difficult to show that they are not available *in addition to* more permissive analyses. Here, I will simply assume, by Ockham's razor, that there is no such unnecessary duplication. The discussion will examine *self*-reflexive pronouns in English (*themselves*) and French (*elle-même*) as well as SE reflexives (in [Reinhart and Reuland, 1993](#)'s terminology) in German (*sich*) or French (*se*).

1.2 Outline

The well formedness of the sentence *Leila washed Lydia* meaning that Leila washed Lydia leads us to postulate the existence of a lexical item, *wash*, as a dyadic predicate, a two place relation this sentence is in part the syntactic realization of. Or to say things another way, the verb *wash* assigns two theta roles, say Agent and Theme here, these theta roles bijectively assigned to the two DPs *Leila* and *Lydia*.¹

Now suppose that we get a reflexive meaning: Leila washed herself. Ignoring the case of the sentence *Leila washed Leila* (a possibly mild condition C violation in some languages, depending on context), this could arise in different ways. To illustrate some options, let us begin with the following cases:

- (1) a. Leila washed herself
 b. Leila s' est lavée *French*
 Leila se is washed
 c. Leila hat sich gewaschen *German*
 Leila has self washed
 d. Leila raxca et acma *Hebrew*
 Leila washed herself

In English (1a), French (1b), German (1c) and Hebrew (1d), a DP, or a particle morphologically independent from the verb, *himself*, *se*, *sich*, *acma*, appears, typically described as a reflexive pronoun or clitic. This raises the following question: how does the reflexive

¹ Note that throughout, I am disregarding so-called proxy readings, unless explicitly discussed, e.g. in section 3.3.2. These readings are important, and telling, but not relevant to most of the points made here.

reading arise in each case? Fundamentally, there are two approaches, each with subcases.²

1. The first approach, diagonalizing³ semantic arity reduction, postulates that semantically, in some, or all, of these cases, the predicate involved is *wash_R*, a variant of the dyadic *wash*, which is semantically monadic and means *self-wash* defined as follows: $wash_R(x) = self-wash(x) = wash(x, x)$: a single element, x , satisfies both argument slots of *wash*.
2. The second approach, argument covaluation, does not assume that such semantic adicity reduction occurs. There is a single semantically dyadic predicate *wash*, syntactically dyadic as well, thus taking two DP arguments syntactically. The reflexive reading arises because these two DPs have the same denotation. In other words, the reflexive meaning arises because it is the meaning of $wash(x, y)$ where $x = y$, that is where x and y are required to covary, that is denote the same individual or are covalued variables.

The first approach will be shown to be not viable for these cases. Furthermore, it will be argued that the second approach is only viable if the ‘reflexive’ argument is understood as directly covalued with its antecedent and not (only) via predicate reflexivization.

First the interpretations of sentences in (1) will be discussed. It will be shown that the first approach, reflexivization via semantic arity reduction, excludes some available interpretations and must thus be abandoned (as sole option). Next the behavior of such sentences as in (1) will be contrasted with counterparts in which reflexivization is not encoded via the presence of an *independent* nominal reflexive morpheme such as *himself*, *se*, *sich*, *'acma*, but instead via the presence of a pre predicate morpheme such as *self* in the case of ‘explicitly reflexive predicates’ such as *self-identify*. This discussion will provide further support for the conclusion that the first approach is inadequate for examples in (1). In addition, it will show that only the version of the second approach in which reflexivization involves direct covaluation is adequate. Finally, further differences between these two types of cases will be discussed, as well as how the latter type (explicitly or inherently reflexive predicates) could be analyzed.

2 Reflexivizations: types of analysis

This section provides a simple argument showing that any approach to reflexivization in terms of semantic adicity reduction for reflexive constructions using English *X-self* (which also apply to French *X-même*, French *se*, German *sich* is too strong as they rule out available interpretations.

Let us first further detail the two approaches to reflexivization mentioned above. To the examples in (1), repeated below, let us add a couple ((2e) and (2f)):

² Throughout, I limit myself to the languages and constructions explicitly discussed. It is conceivable that other options are available, as Déchaine and Wiltschko (2017) discuss.

³ So named because it restrict the relevant pairs of arguments of the predicate (those involved in the reflexive relation) from a cartesian product X^2 to its diagonal. Note also that quite generally, composing an argument with its predicate reduces the arity of the predicate by one. This is of course not what is meant here and in the remainder of this article by arity reduction. What is meant are cases in which the syntactic argument of the predicate is not a semantic argument of this predicate but rather a function mapping this predicate into a reflexive predicate.

- (2) a. Leila washed herself
 b. Leila s'est lavée *French*
 Leila se is washed
 c. Leila hat sich gewaschen
 Leila has self washed
 d. Leila raxac 'et acma *Hebrew*
 Leila washed herself
 e. Leila washed
 f. Leila hitraxec *Hebrew*
 Leila morph-wash

Begin with the first approach:

1. Option #1: The predicate $wash_R$ could be formed from $wash$ in the lexicon, in which case it is semantically and syntactically monadic. This option, semantic and syntactic adicity reduction, is what Reinhart and Siloni (2005) call lexical bundling. In (2e), it would be signaled by the absence of an otherwise required direct object, in (2d), it would be signaled by the presence of the special verb morphology (*hitpa'el*), and in (2b) by the presence of the particle *se* which would presumably be attached to the verb lexically as a (detachable) particle (reminiscent of English verb particle constructions). In English (2a), German (2b) or Hebrew (2c), this option would be excluded under the usual assumption that the very presence of two DPs requires the predicate to be syntactically dyadic. This of course presupposes that there are lexical rules combining morphemes and affecting how the syntax and semantics of the combination is computed. A theory of grammar allowing such rules should include a restrictive theory of what lexical rules are (dis)allowed and why. The limiting case is one in which there are no lexical rules at all.

2. Option #2: The predicate $wash_R$ could be formed from $wash$ in the syntax, in which case it is semantically monadic but syntactically dyadic. There is semantic adicity reduction without syntactic adicity change. The verb $wash$ becomes the semantic one place predicate $wash_R$ because of its syntax. Since two DPs are projected, some mechanism insures this result. This is what Reinhart and Siloni (2005) call **syntactic bundling**. Informally, while two DPs are projected the presence of the Hebrew verbal morphology in (2d) or the presence of the particle *se* in French (2b) would indicate that the theta role normally assigned to the silent object DP is "bundled" in syntax with the other one and this complex theta role is assigned to the subject DP.⁴ Similarly for (2e) where the presence of an otherwise illicit silent DP object would signal that bundling has occurred. This extends to English (2a) or Hebrew (2c) as follows: *himself/'acma* is not an argument, it is not a theta bearer. Rather, its function is to mark $wash$ as interpreted reflexively; normally, theta roles of a predicate have to be bijectively associated with DPs but if one of the syntactic dependent of the predicate is X-self, the theta role that this dependent normally gets is assigned to something else - the "antecedent" of X-self, e.g via bundling. The same could be said with the Hebrew verbal morphology in (2d) or English (2e), assuming the presence of a silent DP behaving like English X-self. Reinhart and Siloni (2005) does not spell out the precise mechanism underlying syntactic bundling, but one mechanism, possibly underlying it in part, assumes that semantic adicity reduction directly results from the reflexive pronoun, or morpheme or the silent object being a function taking the verb $wash$ as argument and

⁴ See Sportiche (2014a) for reasons why these constructions are not 'just' unaccusative, see section 3.3.1 and footnote 16

returning $wash_R$, predicated of the appropriate argument of the verb (here the subject). This option, **diagonalizing arity reducing functional self** is adopted in Cresswell (1973), Bach and Partee (1980), Keenan (1987), Schlenker (2005), Spathas (2010), Lechner (2012), for example.⁵ Such an approach requires enriching the generative power of the system, essentially treating reflexives as quantifiers able to manipulate the argument structure of the predicate they take as argument.

The second approach can be implemented as follows:

3. Option #3: this option - **argumental functional self** - is similar to option #2: but there is neither semantic nor syntactic adicity reduction: in English (2a) or Hebrew (2c), *himself/acma* counts as an argument, a theta bearer. The way in which reflexivization is achieved is by making reflexive the predicate that the reflexive pronoun is a dependent of. In the present case, the reflexive pronoun is analyzed as a function taking the relation *wash* (or more generally a polyadic predicate) as argument and encodes the property that (the) two arguments of *wash* are semantically covalued, e.g. via a presupposition. The way this is done technically is by decomposing *himself* as *him + self*, where *him* ends up being the argument of *wash* and *self* is an identity function that takes the verb *wash* as argument and returns the verb *wash* together with the property that its two arguments are covalued. This is adopted in some form for example in Reinhart and Reuland (1993), Reuland (2001), Patel-Grosz (2013), Sauerland (2013), Ahn (2015), McKillen (2016), Déchaine and Wiltschko (2017). Technically, here is Sauerland's explicit representative treatment: the *self* portion of *himself* is the identity function with a presupposition. It takes *wash* as argument yielding *self wash*, so that *Leila washed herself* ends up as *Leila self-washed her*, with *her* necessarily coreferential with *Leila* to satisfy the presupposition *self* lexically comes with. The literature does not specify, or entertain, how this would generalize to French *se* or German *sich*, English (2e) or Hebrew (2f), but there are imaginable ways to do this, e.g. assuming that they are associated with a silent object of the form *himself*.⁶

4. Option #4: A final option is the classical option, **anaphor binding** adopted e.g. in Chomsky (1981), Heim and Kratzer (1998), Buring (2005), as well as in a variety of Agree/Movement based approaches such as Lebeaux (1983), Kayne (2002), Drummond et al. (2011), Rooryck and vanden Wyngaerd (2011). Again that there is no (semantic or) syntactic adicity change. The verb *wash* projects two DPs and some mechanism insures that the resulting meaning is reflexive. This is achieved by requiring the silent DP of Hebrew and French and the English reflexive to be anaphoric: they must be bound by a local antecedent, here the subject, where binding entails covaluation (which could a priori either be coreference or semantic binding).

This option requires explaining why such anaphoric DPs behave in this manner and in what way the Hebrew verbal morphology, the French particle *se* or the morphology of X-self mandate such behavior.

Overall then, Options #1, #2 and #3 all involve some form of predicate reflexivization. As we will see such approaches are too restrictive. They exclude possible interpretations

⁵ Difficulties of various sorts arise requiring some additional machinery for example: (i) the reflexivizing function does not say which arguments of the base predicate enter into the reflexive relation: the right arguments must be guaranteed to participate in the reflexive relation; (ii) the target predicate may not be dyadic in the right way e.g. with *Henri expects himself to win* where *himself* is not an argument of *expect*, or *This museum sells replicas of itself*, where *itself* is not even a syntactic dependent of *sell*; or with *Henri seems to himself to be pale* where *Henri* is not an argument of *seem*.

⁶ There also are difficulties with such an approach, see section ??.

and can't therefore be the (unique) way in which reflexives yield reflexive meanings. Option #4 does not involve predicate reflexivization.

Now, there is no a priori reason why different ways of expressing reflexive relations within the same language or across languages should all use the same mechanisms. Different reflexivization strategies could use different mechanisms, or the same strategy could in principle use multiple mechanisms even in the same language. And indeed, for example, English *himself* has not been analyzed as involving bundling, but French *se* reflexivization has been analyzed as syntactic bundling in Reinhart and Siloni (2005), or structurally ambiguous (depending on cases) between syntactic and lexical bundling in Hovav and Doron (2009). But if different mechanisms are in principle available and, as far as is known, (mother tongue) learners typically converge on the same mechanism(s) for a given strategy in a given language (as is almost always assumed⁷), the right theory must provide inference strategies mapping the evidence available to language learners to the right mechanism, yielding the observed convergence. This is actually the main problem to solve for any analysis and a non trivial one which is not addressed at all here (but see Déchaine and Wiltschko, 2017 for suggested steps to approach this question).

3 Constraints on Reflexivization via pronouns

We now examine some properties of reflexive constructions where reflexivization is coded via the presence of a pronominal element, one that agrees in ϕ -features with its antecedent, such as *X-self*, *se*, *sich*, *acma* in English, French, German and Hebrew respectively.

3.1 No reflexivization via semantic adicity reduction

Consider the following type of examples originally discussed in Heim (1994):

- (3) Oedipus_k wants [_{localdomain} PRO_k to find himself_k]

What is of interest in such cases is the question of for whom (in which worlds) the binding theory mandated coreference (or semantic binding) between *PRO* and *himself* holds. There are basically two non mutually exclusive candidates. A first candidate is the actual world in which case I, the speaker, believe that there is a single individual who I take to be Oedipus, such that I take Oedipus to want Oedipus to punish Oedipus. A second candidate is any member of the set of Oedipus's modal alternatives. In this case Oedipus could express his desire as : I should punish myself, where there is coreference for Oedipus (but where Oedipus could take himself to be someone else than Oedipus: he could believe he is Achilles, or even not know who he is). I am not going to discuss here why the second option can hold without the first as this is not relevant for our purposes (but cf. Sportiche (2022a), Sportiche (2022b)). What is relevant here is that the first option can hold without the second holding, as Heim (1994) remarks. To see this, let us place ourselves in the following scenario.

⁷ This is not the case however of Haiden (2020) which, for French *se*, defends lexical bundling for agentive verbs with non proxy reflexives, a different analysis for other cases of agentive verbs or for experiencer verbs. I take the evidence provided insufficient to warrant such a conclusion, but showing why would require a full discussion not provided here.

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- (4) Oedipus Scenario: Oedipus, raised as King Polybus’s only son, kills someone he does not know, Laius his real father, whose only son he in fact is. Later, an oracle reveals that, to end a god sent plague on Thebes, Laius’s killer must be punished. Oedipus searches for Laius’s killer to punish him in order to satisfy the gods and end the plague.

In such a scenario, sentence (3) is well formed and true.⁸ This raises an apparent problem for the Binding theory. The problem is that for Oedipus, *PRO* denotes Oedipus (*PRO* is read *de se*) but *himself* does not.⁹ In Sportiche (2022a), Sportiche (2022b), I discuss why this is in fact not a problem as there is coreference for the speaker. What matters to the present discussion is that the speaker can truthfully report that the person Oedipus wants to find is in fact Oedipus, without Oedipus thinking that the person he wants to find is Oedipus. I will describe this as coreference *de re non de dicto*. This interpretation is also available in the French, German (as Heim 1994 reports), and Hebrew (Yael Sharvit, p.c.) counterparts of (3):¹⁰

- (5) a. Oedipus veut *PRO* se trouver
b. Oedipus will *PRO* sich finden
c. Oedipus roce limco et acmo

It should be clear that this interpretation is excluded under any analysis of reflexivization as involving semantic adicity reduction. Indeed under such analyses, the verb in the infinitive is a monadic predicate predicated of *PRO*, that is of Oedipus. Given that *PRO* is read *de se*, that is as Oedipus for Oedipus, the only meaning predicted is that of Oedipus wishing: ‘I will find myself’. Under such analyses, the predicate *find* is turned into the reflexive predicate $\lambda x.find_R(x)$ which is equivalent to $\lambda x.find(x, x)$ with coreference between the two arguments of *find* in all worlds.

I conclude that for English *himself*, French *se* or German *sich*, we cannot entertain options #1 and #2 above, that is, Lexical Bundling, Syntactic Bundling or more generally semantic adicity reduction. As mentioned in the introduction, the right analysis, whatever it is, must be strictly weaker, more permissive, than semantic adicity reduction; as a result, what is more precisely excluded are analyses requiring semantic adicity reduction as the sole option for these cases. Semantic adicity reduction could be allowed, if a second, alternative analysis is available that would allow the relevant reading. This seems like an unnecessary duplication¹¹, and one furthermore that precludes the possibility of a unified analysis for all occurrences of *self*. As I take such an outcome to be highly desirable,¹² I conclude that

⁸ As Charlow (2010) remarks, accenting the reflexive makes these readings more accessible. Charlow reports that accent is not required however, as do other speakers. Still, this is an important remark that we do not investigate here, but is further discussed in Charnavel and Sportiche (2021).

⁹ Similarly, suppose that Oedipus thinks he is Achilles as above, and that he wants himself (Achilles) to find Oedipus. Then it is true that Oedipus wants to find himself, but the content of Oedipus’s desire is not ‘I should find myself’.

¹⁰ Some speakers have difficulties accessing this reading in their own language for such sentences, perhaps a reflection of the general, lesser accessibility of *de re non de dicto* construals. But speakers allowing them do report the contrasts discussed in the remainder of this article.

¹¹ Furthermore, I know of no language in which this difference is morphologically coded, that is one morphology for adicity reduction and another for non adicity reduction. Superficial examples do exist but do not withstand analysis. This said, such a two option analysis is defended in Hovav and Doron (2009) in some cases.

¹² Charnavel and Sportiche (2022) and Charnavel and Sportiche (2021) propose such a unified treatments of *self* anaphora and *self* intensifiers.

adicity reduction is not involved.

How would options #3 and #4 fare?

In principle, a presuppositional analysis as in option #3 of the second approach could accommodate these facts. Under such an analysis, the presence of *himself*, *se* or *sich* signals the presence of a presupposition according to which two arguments of the predicate are coreferential. This presupposition would have to be relativized to attitude holders, so that it would hold either in Oedipus’s modal alternatives yielding *de dicto* coreference, or for the speaker, that is in the actual world yielding *de re* coreference, or both. But as we will see in section 6, this approach faces other, very serious, difficulties.

Option #4 would be straightforward: Condition A requires coreference or covaluation but does not specify in which worlds this must hold, the speaker’s belief worlds, or Oedipus’s. Just like the preceding option, it requires relativizing covaluation to particular attitude holders (as discussed in Sportiche, 2022a, Sportiche, 2022b).

3.2 Self marked Predicates in intensional contexts

The conclusion that semantic adicity reduction is not right is corroborated by an observation made in Heim (1994) whose analytical significance has been overlooked, I think. Heim, 1994, section 3, remarks that in German, inherently reflexive verbs (such as French (*se*) *suicider/commit suicide*) or explicitly marked reflexive predicates such as *self-identify/autogérer, hitpa’el* forms) (can) behave differently from verbs with a reflexive pronoun argument. I will use for these predicates the *descriptive* term **reflexive predicates** without preconception on how they should be analyzed.

Consider the following sentences in the given scenario:

- (6) Henri sees a dead body he mistakenly thinks is Anna’s. I (and my addressee) know that the dead body is in fact Maria’s. Henri tells me: I think Maria killed Anna.
I can report to my addressee:
- | | |
|---|--------|
| a. Henri pense que Maria s’est tuée | French |
| Henri thinks Maria killed herself | |
| b. Henri pense que Maria s’est suicidée | French |
| Henri thinks Maria committed suicide | |

The first sentence (in French or English) is a true report (it reports what happened *de re*), while the second (in French or English) is not. For it to be true, Henri would have to think: ‘Maria killed herself’. We can describe the difference as follows: assuming informally that *se* in the first example stands for the theme argument, the identity relation between the agent Maria and what the theme *se* denotes can be read *de re non de dicto*. The identity relation between the agent and the theme in the second sentence can’t be.

Heim’s German examples with non inherent but explicitly marked reflexive predicates involve a *selbst/selber* nominal (contrasted with verbs with *sich selbst/selber* instead of bare *sich*):

- (7) a. Der Hans soll sich mal vorstellen, mit sich selber sprechen zu müssen.
 ‘Hans should imagine having to talk with himself’
 b. Der Hans soll sich mal vorstellen, Selbstgespräche führen zu müssen.
 ‘Hans should imagine having to conduct self-conversations’

According to Heim (and other German speakers I checked the data with), only the first one can mean that Hans’s imagination-alternatives talk with him, where Hans does not realize that this ‘him’ is Hans himself.

The difference can be more minimally illustrated in French (or English) in which (many) predicates can be explicitly reflexivized by adding the prefix *auto/self*.

Before proceeding, note that, in the cases we will consider, *auto* does involve reflexivization as opposed to what Spathas et al. (2015) calls the “anti assistive” meaning “by oneself”, “alone” or “without help” - an a priori plausible alternative - argued for for Greek *afto/auto* in Spathas et al. (2015).¹³ This is discussed in section 5.1. So for example, the noun *critique/criticism* can be prefixed with *auto* yielding *autocritique/self-criticism*; the verb *critiquer/criticize* can have a reflexive clitic as in *se critiquer/ criticize oneself* or have a reflexive clitic and (a mandatory conjunction to which we will return) the prefix *auto* yielding *s’autocritiquer /self-criticize*. The following examples illustrate that anaphor binding reflexivization and reflexive predicates behave differently:

- (8) Suppose Henri hears Maria often criticizes someone who he thinks is Anna. He thinks: Maria criticizes her too much. In fact, Henri is mistaken, Maria is criticizing herself. I report:
- a. Henri pense que Maria se critique trop
Henri thinks that Maria *se* criticizes too much
 - b. Henri pense que Maria s’autocritique trop
Henri thinks that Maria *se* self-criticizes too much

The first report is a true report, with *de re non de dicto* coreference of the reflexive and its antecedent in the embedded clause. The second report is false: in it, coreference must be *de dicto*. Henri must be thinking: “there is self-criticism by Maria”, which is not the case. This behavior is clearly due to the presence of *auto* and as Heim notes for German with *selbst-N* forms, can be observed in nominals in French or in English. In the context above, the first sentence is a truthful report, while the second is not:

- (9) a. Henri pense que Maria fait trop de critiques d’elle même
Henri thinks that Maria voices too many criticisms of herself
- b. Henri pense que Maria fait trop d’autocritiques
Henri thinks that Maria voices too many self-criticisms

Finally, this difference can be illustrated with reflexive verbs in English. Here are a couple of examples.

Suppose Connie thought that Toby identified the fuzzy character on the picture as Karla the spy, not realizing Toby was in fact pointing at himself. The first report below is a true report, with *de re non de dicto* coreference, while the second is not.

- (10) a. Connie thought that Toby had identified himself as a spy
b. Connie thought that Toby had self-identified as a spy

Here is a second example, using a strategy from Charlow (2010) to help bring out the *de re* reading.

¹³ Note however that, assuming counterfactually that the meaning is the anti-assistive ‘without help’, it would cast serious doubts on any analysis of reflexivization via *self* incorporation, as overt incorporation would not be expected to yield a reflexive reading, but an anti-assistive reading instead.

- (11) Elie, the high priest wants to placate the gods by sacrificing a member of the community. He says: I want to sacrifice the oldest member of the community. He does not realize it's him! But I do. I report:
- a. Funny, Elie wants to immolate himself!
 - b. Funny, Elie wants to self immolate!

The first report is true, the second is false.

In conclusion, *self/auto* marked predicates behave differently (allowing fewer readings) than predicates taking a *self* DP argument. Reducing the latter to the former via (covert) *self* incorporation therefore yields incorrect results: anaphor binding cannot be reduced to *self* incorporation.¹⁴

3.3 Reflexivization as anaphor binding: further reasons

In this section, further support is provided contrasting bound anaphora reflexivization from predicate reflexivization in two areas: Focus alternatives and Proxies. A third area is the syntactic configurations in which either occur, which, as will see in section ?? make reducing the former to the latter implausible.

3.3.1 Focus Alternatives

Sportiche (2014a) discusses the following type of examples to show that French reflexive constructions cannot be unaccusative:

- (12) Seul Henri s' est critiqué
 Only Henri SE is criticized
 Only Henri criticized himself

The truth of (12) can be denied by uttering (13a) or (less easily)¹⁵ (13b) but not (13c):

- (13) a. Non, Pierre s'est critiqué aussi
 No, Peter criticized himself too
 b. Non, Pierre a critiqué Henri aussi
 No, Peter criticized Henri too
 c. Non, Henri a aussi critiqué Pierre
 No, Henri criticized Peter too

Sportiche (2014a) concludes that the unavailable denials (13c) shows that the superficial subject is not (just) an underlying object.¹⁶

¹⁴ Naturally, it is possible to propose an ad hoc solution: stipulate that covert *self* incorporation has different properties than overt *self* incorporation to accommodate the facts discussed in this section. I ignore such an unmotivated option.

¹⁵ Haiden (2020) reports such readings as experimentally unavailable. I take the experimental protocol adopted to be insufficiently controlled to warrant this conclusion (there is no denying that there are preferences - availability is a different matter). Furthermore, facts are quite clearly as reported for me and my consultants, as are the striking contrast between (13a) as answer to (12) and (13a) as answer to (14a).

¹⁶ More precisely now in light of Charnavel and Sportiche (2022) and Charnavel and Sportiche (2021), hence the 'just' qualification, the superficial subject cannot **only** have the theta role assigned to the object. A derivation in which (somehow) the object move to the subject theta position (ending up with two theta roles) is consistent with the available focal alternatives.

Now suppose we make the verb a reflexive predicate by adding *auto* as below in (14a):

- (14) a. Seul Henri s' est autocritiqué
 Only Henri SE is self-criticized
 Only Henri self-criticized himself
 b. Only Toby self-identified as a spy

Now, not only can't (14a) be denied by uttering (13c), showing that these *auto/self* verbs are not unaccusatives, it also can't be denied by uttering (13b). In other words, while (12) allows both a sloppy reading (*only Henri engages in self-criticism*) deniable by (13a) and a strict reading (*Only Henri criticizes Henri*) deniable by (13b), (14a) only allows the sloppy reading. Similarly, (14b) can only be denied by uttering *No, Karla also self-identified as a spy* and not by uttering *No, Karla also identified Toby as a spy*. Thus (14a), and (14b) only allow the sloppy reading. This corroborates the conclusion that treating cases like (12) by reducing them to cases like (14a) or (14b) via *self* incorporation is not viable.

The same facts can be reproduced with reflexive nominals. The truth of (15a) can be felicitously denied by uttering (15b) or (15c) but not (15d) (the possessive bolded only to indicate it is the focus associate of *only*):

- (15) a. Seules **ses**_k critiques de lui_k-même blessent Henri_k
 Only **his** criticisms of himself hurt Henri
 b. Non, les critiques de lui_m-même de Pierre_m blessent Henri_k aussi
 No, Peter's criticisms of himself too hurt Henri
 c. Non, les critiques de Henri par Pierre aussi blessent Henri_k
 No, Peter's criticisms of Henri also hurt Henri
 d. Non, les critiques de Pierre par Henri aussi blessent Henri_k
 No, Henri's criticisms of Peter also hurt Henri

This is consistent with long standing conclusions regarding what can be possessivized in nominals: if both an agent and a theme are present, only the agent can be possessivized (unless the agent is in a *by*-phrase): the focal alternatives to the possessor can thus only range over agents.¹⁷

Now, using explicitly reflexive nominals still allows (15b) as denial but removes the strict reading, thus excluding the denial in (15c):

- (16) Seules **ses**_k autocritiques blessent Henri_k
 Only **his** self-criticisms hurt Henri

3.3.2 Proxies

Another reason to reject a predicate reflexivization analysis is that overtly reflexive predicates disallow proxy readings, while reflexive binding of a DP does not. Reducing the latter to the former blurs a necessary distinction. Thus, there is a minimal contrast between examples (17a) and (18a):

¹⁷ This correctly predicts that *Seules ses_k critiques par lui_k-même blessent Henri_k / Only his_k criticisms by himself_k hurt Henri_k*, or *Seules les critiques de lui_k par lui_k-même blessent Henri_k / Only the criticisms of himself_k by him(self)_k hurt Henri_k* can be felicitously denied by (15d), and not by (15c).

- (17) a. Seul Ringo s' est critiqué
 only Ringo SE is criticized
 Only Ringo criticized himself
 b. Only Ringo identified himself as one of the Beatles
- (18) a. Seul Ringo s' est autocritiqué
 only Ringo SE is self-criticized
 Only Ringo self-criticized himself
 b. Only Ringo self-identified as one of the Beatles

Indeed, while (17a) could be used to describe a situation in which Ringo, visiting the Madame Tussaud museum, criticizes the way in which his wax figure represents him, (18a) couldn't. The latter can only mean that Ringo criticized Ringo the person. Similarly, while (17b) could be used to describe a situation in which Ringo, visiting the Madame Tussaud museum, identified his wax figure as one of the Beatles, (18b) couldn't. The latter can only mean that Ringo identified himself the person as one of the Beatles.

4 Analytical Implications

4.1 Viable analyses

The difference of behavior between the type of examples in (9) or (10) repeated below has analytical implications.

- (19) a. (i) Henri pense que Maria fait trop de critiques d'elle même
 Henri thinks that Maria voices too many criticisms of herself
 (ii) Henri pense que Maria fait trop d'autocritiques
 Henri thinks that Maria voices too many self-criticisms
 b. (i) Connie thought that Toby identified himself as a spy
 (ii) Connie thought that Toby self-identified as a spy

Reflexives pronouns need not be covalued with their antecedents in all worlds. They can be interpreted as proxies and they can give rise to strict identity under focal alternatives or Ellipsis. Self-predicates behave otherwise in all these respects.

Considering the above examples, any treatment that analyzes *se critiquer/ identify oneself* as involving a predicate with the semantics as *self-criticize/self-identify* is too restrictive. Looking at the examples below:

- (20) a. Henri identified himself as...
 b. Henri self-identified \emptyset (as...)
 c. Henri self_k-identified [him t_k] as...

The facts discussed exclude as too restrictive all treatments in terms of semantic adicity reduction under which the verb of a sentence like (20a) is turned into a one-place predicate applying to the antecedent of the reflexive (with no object projected) as in (20b): options #1 and #2 are untenable.¹⁸

¹⁸ It is worth noting that Heim's German examples contrast *selbst* forms with *sich* in a PP. But the same contrast holds with direct object *sich*: In the same scenario as above with Elie, the high priest, I report:

a. Komisch, Elie will sich opfern/verbrennen!
 Funny, Elie wants himself immolate/immolate

Whether these facts also exclude treatments in which the reflexive interpretation arises by turning it into a reflexive predicate without semantic adicity reduction as in option #3 is less immediately clear as it depends on the specifics of its implementation, and in particular on whether the behavior of *self* forms is derived from general principles, or simply stipulated. If the former, such analyses face very serious difficulties discussed in section 6.

To mention only one of them here: crosslinguistic homophony between anaphoric reflexives and so called emphatic or intensifying reflexives of the form pronoun-*self* and cognates, or that between the bare *self* of *self*-predicates and emphatic/intensifying bare *self* needs explaining, which mandates postulating the very same *self* for all these usages. Such homophonies are not required and reportedly, not all languages seem to have them. But some striking quantitative data is available for such pairs: out of seventy two languages surveyed from a broad variety of unrelated linguistic families in [Gast and Siemund 2006](#), forty show homophony between reflexives and intensifiers. Furthermore, this homophony is not limited to *self* terms. As [Charnavel and Sportiche \(2022\)](#) discuss, the anaphoric/intensifier homophony is found also with English *own*, or French *propre* (which are not cognates) which display no syntactic distributional difference between usages. The desideratum to attribute the same lexical properties to *self* in reflexives and intensifiers is of course acknowledged in the literature, e.g. in [Browning \(1993\)](#), [Gast \(2006\)](#) or [Reuland \(2011\)](#) for example. But if the goal is to explain why this pattern is found, this requirement basically undermines all treatments of *self* function yielding a reflexive predicate. Indeed, in:

(21) Mary herself *was there*

there is no relevant predicate to turn into a reflexive relation.

I discuss further difficulties for the argumental functional *self* in the appendix section 6.

Finally adopting option #4 for cases in (1) leaves room to handle intrinsically reflexive predicates (like *suicide*), or explicitly marked reflexive predicates (like *self-criticism*) differently in a variety of ways (e.g. conceivably, albeit neither necessarily nor plausibly, by assuming that they alone involve semantic arity reduction). Note however that not all implementations allow such differential treatments. For example, treating an anaphor as a wholesale trace of its antecedent as in [Drummond et al. \(2011\)](#) entails treating the reflexive and its antecedent, both instances of the same syntactic object as per the copy theory of traces, as covalued in all worlds. This is just as strong as option #2 treatments and thus too strong. This is not to say that all movement analyses of the anaphor /antecedent are excluded. As a matter of fact, an option #4 type proposal attempting to accommodate these facts in terms of movement, covering anaphoric reflexives, logophoric reflexives, emphatic reflexives and all usages of bare *self* is put forth in [Charnavel and Sportiche \(2023\)](#).

Funny, Elie wants to immolate himself!

- b. Komisch, Elie will eine Selbstverbrennung tun!
 Funny, Charles wants a self-immolation do
 Funny, Elie wants to self immolate!

The first report is true, the second false. This shows that an analysis of non PP *sich* in terms of arity reduction as in [Büring \(2012\)](#) is not tenable.

4.2 Why are anaphors anaphors?

It is desirable to derive from primitive properties why certain expressions, e.g. *herself* can behave anaphorically under certain circumstances.

Taking *herself* to be a functional arity reducer has the merit of providing an answer to this question by attributing a particular lexical content to it, namely, as mentioned earlier, that of being a reflexivizing function taking the predicate it is a dependent of as argument. This in addition derives why antecedent and reflexive are in a local relation. But as argued, this is not viable.

Similarly, taking *self* of *herself* to be a reflexivizer having to incorporate to the predicate the reflexive is an argument of provides similar benefits. To force incorporation, *self* ought to be taken as function taking a predicate as argument, but as discussed above, it is most unclear how to implement such a view in a consistent way and looks non viable as well.

Consequently, a different approach must be developed, one that does not rely on predicate reflexivization. I take this to be an independently welcome conclusion. Indeed, it is most unclear how these approaches can generalize to logophoric usages of English or French *self* reflexives, without invoking ad hoc lexical ambiguities (why wouldn't the *self* of logophoric *himself* not be a reflexivizer?). Furthermore, it is surely desirable to treat uniformly not only the *self* or anaphoric reflexives or logophoric reflexives, but also the *self* morpheme of intensifying reflexives, a widespread homophony that demands explanation. By this measure, no current analysis is satisfactory.

Ultimately, I adopt an altogether different approach, not discussed here but developed in Charnavel and Sportiche (2022) and Charnavel and Sportiche (2021) and forthcoming work, according to which *self* takes two individual arguments, asserting their covaluation, and attempting to unify all uses of *self*, in anaphors, logophors and intensifiers, whether incorporated or not.

5 Explicitly marked or intrinsically reflexive predicates

5.1 A detour: *auto* and incorporated *self*

As mentioned earlier, we took it that *auto* can involve reflexivization as opposed to only what Spathas et al. (2015) calls the "anti assistive" meaning "by oneself", "alone" or "without help" - an a priori plausible alternative - argued for for Greek *afto/auto* therein.

There are several reasons to adopt this conclusion.

First, when looking at some predicates at least, with several arguments, one argument, always understood as covalued with the subject of the predicate must be covert in the presence of *auto*, *self*. Thus, a sentence such as:

(22) Charles a *auto* évalué Maria / Charles self evaluated Maria

is ill formed: if the anti assistive reading was an option here, it should be well formed and mean 'Charles evaluated Maria without help'.

Second, this behavior is also visible for example in a nominalization such as *self-evaluation/ auto-evaluation*: if *self/auto* could mean 'without help' here, this should be able to mean 'evaluation by someone of someone or other without help, which it can't. It must mean 'evaluation by X of Xself. Finally, *auto* (and *self*) are compatible with stative predicates

such as *connaitre/knowledge* as in *s'auto-connaitre, self-knowledge*, unlike the ‘anti-assistive’ usages which are not compatible with stative predicates (cf. Hole (2002)). This last point means at least that *auto, self* cannot be only anti-assistive.

This said, the ‘flavor’ of the anti-assistive reading is available, for example in:

- (23) Henri s’est auto-évalué
Henri did a self evaluation

Leaving aside the question of whether this is technically an anti-assistive reading (without help) or just an adnominal intensifying reading (Henri himself evaluated himself) (see Charnavel and Sportiche 2022 and references therein for discussion), an intensifying reading is available raising the question of whether a ‘pure’ intensifying reading is available for *auto*. I first discuss cases in which it could be thought that it is but in which I am going to suggest it is not and discuss why this flavor can arise. Next I will point out cases in which it is. This first conclusion is based on the well formedness and wide use (hundreds of thousand or more hits on a Google search for French, more than a hundred thousand for English *self portrait of oneself* alone) of nominal expressions such as:

- | | | |
|---------|-------------------------|-----------------------------|
| (24) a. | auto évaluation de soi | self evaluation of oneself |
| b. | auto contrôle de soi | self control of oneself |
| c. | auto réalisation de soi | self realization of oneself |
| d. | auto estime de soi | self esteem of oneself |
| e. | auto portrait de soi | self portrait of oneself |
| f. | auto perception de soi | self perception of oneself |
| g. | auto découverte de soi | self discovery of oneself |

In all these examples all involving nominals with two theta roles, all interpreted as reflexive relations, is the presence of *de soi/ of oneself*, which is systematically interpreted as a theme, never as an agent or an experiencer. As said above *auto évaluation /self evaluation* must mean evaluation by X of Xself. But it could also equivalently mean evaluation of X by Xself. The examples above can immediately be accounted for if the latter is a closer paraphrase for these cases, making *auto* standing for an incorporated version of the passive by-phrase *by X-self*:

- | | | |
|---------|---------------------------------|----------------------------------|
| (25) a. | auto évaluation de soi | self evaluation of oneself |
| | évaluation de soi par soi-même | evaluation of oneself by oneself |
| b. | auto contrôle de soi | control of oneself |
| | contrôle de soi par soi-même | control of oneself by oneself |
| c. | auto réalisation de soi | self realization of oneself |
| | réalisation de soi par soi-même | realization of one by oneself |
| d. | auto estime de soi | self esteem of oneself |
| | estime de soi par soi-même | esteem of one by oneself |
| e. | auto portrait de soi | self portrait of oneself |
| | portrait de soi par soi-même | portrait of one by oneself |
| f. | auto perception de soi | self perception of oneself |
| | perception de soi par soi-même | perception of one by oneself |
| g. | auto découverte de soi | self discovery of oneself |
| | découverte de soi par soi-même | discovery of one by oneself |

In other words, all these nominals are akin to impersonal passives (roughly like the pseudo English *there was danced the polka by many* and the version of these nominals with a missing argument are ambiguous, one version being passive nominals: *auto-critique/ self-criticism*, for example, either has an incorporated theme with a silent agent/subject, or has a passivized object, thus allowed to be silent and an incorporated *by X-self* phrase:

- (26) a. auto-critique
 b. [e_k [auto_m critique t_m]]
 c. [e_m [auto_k critique t_m t_k]]

Returning now to verbs, e.g. the verb *critiquer/criticize*, we have two variants of the reflexive constructions, with and without *auto*:

- (27) a. Jean doit se critiquer / Jean must criticize himself
 b. Jean doit s'autocritiquer / Jean must self-criticize

where, as noted, the presence of *auto* requires the reflexive clitic *se*. The proposed analysis above leads to a subtle difference between the two: both can be properly glossed as *criticize oneself*, but the second is also glossable as *being criticized by oneself*, with the by-phrase incorporated as *auto*. This explains why *auto* incorporation can give rise to an anti-assistive flavor: choosing to add *auto* to the sentence in (27a) does not change its truth value and thus appears to be redundant unless *auto* is focused. It is therefore natural (as an implicature) assume as a hearer that it is focused, changing the sentence focus value. As a result, alternatives to the contribution of *auto* are understood to be excluded. If *auto/self* is an incorporated theme, this is saying that Jean is the sole theme. This option is illustrated in the following discourse:

- (28) A: Jean a incriminé Pierre / John incriminated Peter
 B: Non, Jean s'est auto incriminé / No, John self incriminated.

If *auto/self* is an incorporated agent, this is saying that Jean is the sole agent, yielding an anti-assistive flavor.

- (29) A: Jean a incriminé Pierre / John incriminated Peter
 B: Non, Pierre s'est auto incriminé / No, Pierre self incriminated.

Now there are cases such as these found in English, or its approximate French translation:

- (30) a. The strong attendance for a self-produced poetry reading fired up Jane ('Just Kids', Patti Smith, illustrated edition, 2018, p. 285)
 b. L'affluence pour ce spectacle auto-produit excita Jeanne

Here, a 'standard' reflexive reading is excluded, since the verb *produire /produce* takes reading/lecture as one argument, and, in this context, the other one, encoded by *auto/self*, means Patti Smith, the writer. This shows that taking *self* to be a predicate reflexivizer reflexivizing the predicate to which it attaches is plainly wrong.

I take such cases to instantiate a logophoric usage of the reflexive, referring back to the person (Patti Smith) from whose point of view the event is reported. So there is still coreference between two expressions, but here, it is between the agent, the producer, and the logophoric center (which, following Charnavel (2020) and Charnavel (2019), I take to be a pronoun subject of a locally represented logophoric operator), together with an anti

assistive flavor for the same reasons as above.¹⁹.

There are expressions such as:

- (31) un four auto-nettoyant
a self cleaning oven
'an oven that cleans itself'

Here we have an active verb form (a present participle in French), where *auto/self* can readily be analyzed as an incorporated internal argument. Cases like *autocollant/lit. self sticking/sticker* again with an active form in French, which seems to mean 'sticks by itself' are a bit surprising. Indeed, if *auto* could mean *by itself, oneself* in the sense of alone, the ill formedness of (22) would become puzzling. Instead, I suggest that *auto/self* still behaves like an internal argument of *coller/stick*, but in this case, the external argument is not agentive, but simply causal: a more accurate paraphrase *autocollant/lit. self sticking/sticker* would be 'sticks by itself' with a by-phrase in the sense of 'sticks because of itself', still a passive like structure but of a causal external argument.

English *self* also allows *self* to stand for an (incorporated) internal argument (as in (31) or a *self-configuring program*, meaning 'a program configuring itself'). But the option of *self* being an incorporated external argument as in French is routinely available with *self*+passive participle as in *a self configured program* paraphrased by 'a program configured by itself'.

Finally, as mentioned above, there also are cases where *auto* does have a non reflexive intensifying use (this is also true in English as the glosses indicate):

- (32) a. Ce politicien a auto-financé sa campagne électorale
'This politician self financed his electoral campaign'
b. L'auto financement de sa campagne électorale the self financing of his electoral campaign
c. Les nations hors G-7 pourraient acheter des pétroliers et les auto assurer
'Nations outside the G-7 could buy tankers, and self insure them'

Here, there does not seem to be any reflexivization of the predicates involved (*finance, insure*). Nor is a logophoric use plausible, as these examples are fine without any context provided point of view holder. This is an intensifying use of *auto, self* (and for the second, the meaning seems not to be anti-assistive but rather adnominal: the nations themselves insure them, rather than the nations insure them without help).

The existence of such cases raises unresolved questions, e.g. why (22) is ill formed (unlike in (22), the fine examples in (32) have an animacy mismatch between subject and object, which may play a role).

5.2 Self-marked predicates

Let us briefly return to the difference between the two examples below, all of which behaving like their French counterparts in the relevant respects, limiting the discussion here to suggestive remarks:

¹⁹ Unlike French *auto*, English *self* is used as (part of) an intensifier. We might therefore a priori expect it to be usable as a pure intensifier when bare and 'incorporated'. I think this does not occur for reasons that require a more articulated discussion of the properties of *self* than can be given here, but cf. [Charnavel and Sportiche \(2022\)](#).

- (33) a. His criticism of/knowledge of/confidence in/ himself, he taught himself skills
 b. His self-criticism/ self-knowledge / self-confidence/ self-taught skills

Because *self* and *auto* in such cases share many descriptive properties, it is reasonable to attempt a unified treatment for both, in particular using what can be learned from the French cases.

Now, we assume that (33a) is handled classically: *himself* is an anaphor subject to Condition A and *self* incorporation is not involved, for reasons discussed earlier. Given examples such as (3) in contexts like (4), we take the coindexing requirement between the anaphor and its binder to be world parametrized.

How should the cases of *self/auto*-prefixation such as (33b) be treated? Given the conclusion that lexical options are not needed for the cases we discussed, it is desirable to avoid lexical options for these if possible, particularly in the absence of a coherent theory of what lexical operations are allowed to do.

Now, whether a verb, a noun or an adjective allows a *self*-variant depends in part on its lexical properties: if *self* is a reflexivizer, its host has to be reflexivizable in principle, else no coherent interpretation can be constructed. This need not be lexically encoded. But only some of the in principle eligible hosts are attested with *self* variants.²⁰ This seems to be, at least in part, an arbitrary property that must be listed somewhere and does not say whether the forms result from syntactic composition or not. A possible solution to this question of productivity is to assume that the only mode of composition is syntactic but that (late) lexical insertion acts as a filter on what complex or idiosyncratic forms are actually allowed/attested - but this would have to be made precise of course.

Furthermore, there are reasons to treat *self* forms, and the French equivalent *auto* forms as syntactically composed.

Recall the discussion in section 5.1 above. The French equivalent of English ‘incorporated’ *self* is *auto*. French *auto* like English *self* can be used to encode reflexive relations on nouns *autoévaluation/self evaluation* or adjectives *auto satisfait/self satisfied*, but much more easily on verbs *s’autoévaluer/ self evaluate* than in English. When present, *self/auto* is present, the reflexive relation must hold *de dicto*.

Importantly, the reflexive relation need not be between semantic arguments of the same predicate:

- (34) a. S’ auto juger innocent objectivement est difficile
 se self judge innocent objectively is difficult
 To objectively judge oneself innocent is difficult
 b. Charles voulait s’ auto proclamer roi
 Charles wanted to se self proclaim king
 Charles wanted to proclaim himself king
 c. Un roi auto-proclamé
 a king self-proclaimed
 a self proclaimed king.

Here *oneself/himself* are not arguments of the verbs *judge/proclaim* but the subject of the adjectival or nominal small clause. This is also available on some participles at least as in (34c) (although not on nouns or adjectives which do not license ECM/small clause com-

²⁰ *Self*-forms are by no means marginal. A search of online databases for English returns thousands of *self*-forms, verbs being the least represented category. In addition, speakers do not reject novel forms, although they tend to be aware that they are novel.

plement structures) where the reflexive relation (proclaim oneself king) also holds between the subject of *proclaim* and the subject of the nominal small clause headed by *king*. And of course, this is also true of English participles *self proclaimed king*, *self styled expert*, *self named prophet*, *self confessed murderer*... as well as a limited number of verbs such as:

- (35) a. Charles identified himself as...
 b. Charles self-identified \emptyset (as...)

It is thus not possible to take *self/auto* to, as a general rule, lexically covaluate two arguments of the predicate it modifies.

Let us now very briefly sketch how a syntactic treatment could be formulated: such cases could involve *self/auto* mandatorily raising as a head when merged (superficially) bare, and would thus be subject to locality constraints on head movement. French would be similar but with *auto* never licensing an overt possessor and with mandatory *auto* movement. The main challenge is to derive the necessarily *de dicto* reading of such constructions. If *self/auto* ended up in the spine, taking the predicate as argument, as in several analyses in options #2 and #3, this would be derived given footnote ???. But this would mean classic incorporation would not be quite what is involved: in classic incorporation, the incorporee is an argument or the incorporator; here it would be the reverse.

The following observations about French *auto* support the conclusion that movement (or simply the merging) is syntactic in French, since *auto* can merge in different positions, higher or lower than *re*:²¹

- (36) a. Charles s' est re évalué
 Charles se is re evaluated
 Charles evaluated himself again
 b. Charles s' est re auto évalué
 Charles se is re self evaluated
 Again, Charles evaluated himself
 c. Charles s' est auto re évalué
 Charles se is self re evaluated
 Charles re evaluated himself
 d. Charles s'est lui-même re évalué
 Charles se is himself re evaluated
 Charles has himself reevaluated himself

[Sportiche \(2012\)](#) shows that French *re* basically behaves like an autonomous adverb, merging above (some) VP projection (which in a 'shell' could be the lower VP or the higher vP). So *auto* can be even higher. Sentence (36a), is ambiguous between two interpretations: a repetitive reading (Charles evaluated himself twice) and a restitutive (someone evaluated Charles, and then Charles did it, an ambiguity arising from the different merging positions of *re*).

Sentence (36b) is not ambiguous. As *re* outscopes *auto* what is repeated is Charles performing a self-evaluation: adding *auto* here removes the possibility that the first evaluation was done by someone other than Charles (and this is predicted by the analysis of *auto* proposed in section 5.1).

²¹ As discussed in [Sportiche \(2012\)](#), 're' followed by a vowel can for the author be pronounced [rö] or [re], the latter only allowing a restitutive reading, the former being ambiguous but preferably repetitive. The following examples only use the former.

In sentence (36c), *auto* is added to ‘Charles s’est réévalué’ with *auto* outscoping *re*. *Auto* is felicitous as a way to emphasize that the reevaluator is Charles (and not someone else) (see again section 5.1), whether (36a) is interpreted restitively (someone evaluated Charles, and then Charles did it), or repetitively (Charles evaluated himself, and then Charles did it again). So here the resulting meaning is very similar to that of (36d).²² That *auto* can merge higher than an autonomous adverbial casts doubts on an incorporation approach, raising anew the questions of why movement is local, and why the reflexive relation must be read *de dicto*.

Hebrew *hitpa’el* (as in (37a), where the specific morphology is glossed as ‘morph’) which is reportedly limited to covaluating coarguments would still need to be accounted for: while French (or English) allows reflexive readings without *auto* ((34a) without *auto/self* is well formed) in ECM/small clause cases, Hebrew does not.

- (37) a. Leila hitraxec *Hebrew*
 Leila morph-wash
 Leila washed herself
 b. Leila s’est lavée *French*
 Leila se is washed
 Leila washed herself

But the question arises as to how the reflexive reading in examples (37) arises. Here the answer requires understanding the role played by *s(e)* or the *hitpa’el* morphology as they not only license reflexive readings, but middle readings as well, and in the French case at least, anticausative readings. Because of this variety of possibilities, Sportiche (2014b) argues that there is nothing specifically reflexive in (37b), the reflexive reading arises as a by-product of independent factors. A unified analysis of the role played by the *hitpa’el* morphology may lead to similar conclusions (see Kastner (2016) for some discussion) and might at the very least show that the *hitpa’el* conjugation does not instantiate an arity reduction process.

Two additional remarks:

First one property that needs to be derived for all case discussed in this section is subject orientation: in all cases, the subject must be part of the reflexive relation. This is not a necessary property of such “prefixes”. Thus the French prefix *entre/inter* yields verbs such as *entrecroiser*, *entrelacer*, *entremêler* behaving as follows: they have bare variants *croiser*, *lacer*, *mêler/cross*, *lace*, *mix* taking three arguments (A croise B with C / A cross B with C) and acquire a reciprocal reading on the object with *inter* (A makes the Bs cross each other). But subject orientation is possible too as with *s’entretuer*, *s’entredéchirer*, *s’entremêler/kill each other*, *tear each other apart*, *mix with each other* (the last two being non causative). This in my view suggests a syntactic treatment, not in terms of presupposition of covaluation, but in which *self/auto* is higher than VP and attracts the closest argument it can (namely the subject) as one involved in the covaluation *self/auto* asserts.

A second remark is that reflexive *self/auto* attaches to nouns or participles, and otherwise can only covalue direct syntactic or semantic dependents, never adjuncts. This strongly

²² English *re-* has a much more limited distribution but the same facts can partially be observed in nominals. One can standardly have:

- (i) a. Maria did an evaluation; b. Maria did a self evaluation; c. Maria did a reevaluation; d. Maria did a self reevaluation
 (d) would be felicitous in a context such as: Maria’s doctor did an evaluation of her but she didn’t trust anything that he said, so she decided to do a self re-evaluation, to reevaluate herself herself.

suggests therefore that nouns do take arguments that *self/auto* can covalue, and that passive participles can retain the external argument that the corresponding verbs have as arguments and not adjuncts, which can then participate in the covaluation relation induced by *self/auto*.

5.3 Inherently Reflexive Predicates

Finally, consider verbs that look inherently or lexically reflexives:

(38) Charles washed/ shaved

Are these instances of lexical reflexivization turning the verb *wash* into an intransitive *wash_R*? There is evidence suggesting a negative answer, based on the properties of *again* which functions like French *re* discussed earlier. Thus *Charles evaluated himself again* is ambiguous between a repetitive reading (Charles evaluated himself twice) and a restitutive reading (someone else evaluated Charles after which Charles evaluated himself). As suggested in von Stechow (1996) (see Beck and Johnson, 2004, Sportiche, 2012 for supporting discussions), this can be derived by assuming that *again* modifies either the entire vP (roughly: ‘Charles cause Charles be evaluated’) or the inner VP only (roughly: ‘Charles be evaluated’). In other words, this can be handled by postulating two distinct merging sites for *again* roughly as below, where the lexical presupposition of *again* requires that what its sister describes has previously occurred:

(39) a. Repetitive: [again [_{vP} A cause [_{VP} B evaluated]]]
 b. Restitutive [_{vP} A cause [again [_{VP} B evaluated]]]

With this background, consider the following:

(40) a. Monday morning, Lydia shaved Charles
 b. Monday afternoon, Charles shaved again

Speakers report this as a well formed discourse.²³ Given that the shaver is not Charles the first time around, this means (40b) encodes a restitutive reading. So there must be a VP meaning ‘Charles be shaved’ that is modified by *again*. In other words, this means that the verb *shave* in (40b) is syntactically transitive. This could be handled by taking the VP in (40b) (or other structures with similar verbs) to allow a silent direct object *self* or *himself*. Further evidence for the conclusion that there is a syntactic direct object comes from what manner adverbials contribute:

(41) a. Lydia washed thoroughly
 b. Charles shaved closely
 c. Maria dressed nicely

In all cases, these adverbials can modify the resulting state (of washing, shaving or dressing) holding of the subject and is analyzed as modifying VP, which would be consistent with the general observation that manner adverbials are structurally the lowest adverbs. In other words, the analysis would be:

(42) a. Lydia_q v [[_{VP} e_q ‘resulting state’] thoroughly]

²³ The French verb *se suicider/ commit suicide* behaves differently: *Lydia a tué Charles, il est revenu à la vie, puis s’est suicidé *de nouveau / Lydia killed Charles, came back to life and committed suicide *again*, suggesting that *suicide* mandatorily contains *auto/self*, as its etymology suggests.

- b. Lydia_q v [*VP* e_q washed] thoroughly]

Furthermore, consider the following two sentences in the context provided:

- (43) Charles is a famous barber who loves to shave celebrities. Looking at a fuzzy picture of a famous barber, he says: I hope I will shave him! He does not realize it's him in the picture, but I do. I report:
- a. Funny! Charles hopes to shave himself!
- b. Funny! Charles hopes to shave!

The first sentence is judged true, while the second is judged false. In other words, inherently reflexive *shave* is a transitive verb, but behaves like predicates explicitly marked with *self*. To derive this, one option would be to assume that the object is a silent *self*. This object would have to mandatorily incorporate to form *self-shave*, something reasonable if what is idiosyncratic about these verbs is that *self-shave* is spelled out as *shave*.

Verbs such as *shave*, *wash*, *dress* etc.. are sometimes called "naturally reflexive" or "naturally self oriented". It is unclear what 'natural' means here. Surely, there is nothing intrinsically self directed about their meanings. Furthermore, it is far from clear that the most frequent use of such verbs is self directed. An alternative, consistent with the data discussed here, is that when used reflexively, they involve a canonical body part and are thus cases of inalienable possession (a reflexivization strategy overtly used in a number of languages - see e.g. Déchaine and Wiltschko, 2017): *Charles shaved his face/beard*, *Lydia washed her body*, *Elie dressed his body* in which the canonical body part denoting noun incorporates and remains (recoverably) silent. Such constructions display the *de dicto* property illustrated in (43).

6 Appendix: Difficulties with a functional *self* analysis

We now return to option #3, pointing out difficulties with (some) existing proposals. First I take as boundary condition that any explanatory theory must be parsimonious. Given the common crosslinguistic homophony between the *self* as it appears in reflexive pronouns, and the *self* occurring in *self*-predicates, this means that the very same element *self* should appear at the very least in both (20a) and (20b) on page 13. This is in fact commonly assumed and forms the basis for the intuition that the treatment of anaphoric pronoun-*self* reduces to some form of *self* incorporation.

But homophony extends further. As Charnavel and Sportiche (2023) discuss, there is common crosslinguistic homophony between anaphoric reflexives, logophoric reflexives and so called emphatic or intensifying reflexives of the form pronoun-*self* and cognates, or between the bare *self* of *self*-predicates and emphatic/intensifying bare *self*. And, as noted earlier, this type of homophony between anaphoric, logophoric and intensifying usages is not limited to *self*: it is also found with unrelated items in different languages, e.g. English *own* or French *propre* - cf. Charnavel (2012), Charnavel and Sportiche (2022). This needs explaining, mandating postulating the very same *self* for all these usages.

From this vantage point, we noted earlier (see example (21)) that treatments of *self* as a function mapping a predicate into a reflexive predicate appear flawed given that emphatic reflexives involve no relevant predicate.

Even an unparsimonious analyses not assuming a common *self* to anaphoric/logophoric reflexives and emphatic reflexives face difficult problems. I discuss here one strand of proposals

As mentioned earlier, the analysis proposed in Lechner (2012) is a version of option #2 (diagonalizing semantic arity reduction) and therefore too strong. Lechner (2012) takes *self* to be an arity reducer taking a relation as argument. To acquire this argument, *self* moves via Anaphor Raising, a QR equivalent. Sauerland (2013) proposes an alternative similar in spirit but in a version of option #3. Sauerland (2013) (taken as example but the discussion would apply - mutatis mutandis - to others e.g. Reuland (2011)) takes *self* to be the identity function taking a relation as argument and adding the presupposition that two individual arguments of this relation are covalued.

(44) $[[self]](P)(x)(y)$ presupposes that $x = y$ and denotes P.

Unlike Lechner (2012), Sauerland (2013) is not concerned with deriving the general properties of anaphor binding. Rather, it defends a presuppositional analysis to assimilate it to other cases of weakened presupposition.²⁴ Sauerland's formulation is thus meant to apply to binary relations only. This would have to be modified to take into account more complex cases, perhaps along the lines explored by Lechner, who does try to take the syntactic complexity of VPs into account.²⁵

Such approaches have the merit of motivating why *self* movement takes place and derive locality: basically it is the locality of *self* incorporation. But they leave much unclear.²⁶ First, it is unclear how the semantics of *self* match its syntax. Syntactically, *self* first combines with a pronoun. So (44) cannot be right. Second, the structure and distribution of *himself* should not allow *self* moving by itself. Indeed, invoking *self* incorporation seems inconsistent with syntactic constraints on head movement: (plain) anaphors can occur in contexts (adjuncts, inside PPs or nominals) not accessible to head movement (incorporation is strictly bounded, cf. Baker 1988, Angelopoulos and Sportiche (2022)). For example, the following examples are well formed, with *itself* a plain anaphor:

- (45) a. Ce musée vend des répliques de lui-même
b. This museum sells replicas of itself

Furthermore, the behavior of *himself* is paralleled in terms of distribution and interpretation by the French *lui-même* /*him-same* (see Charnavel and Sportiche, 2016). Yet, as Safir (1996) remarks, *même* is adjectival and never incorporates into verbs. Additionally, *lui-même* denotes an individual but *même* is a two place identity (or similarity) adjective, thus presumably heading an AP: it can't be the head of *lui-même*; instead *lui* must be, with *même* an adjunct, hence not in a syntactic position to incorporate. A unified approach to English *himself* and French *lui-même* would appear out of reach despite their common properties.

²⁴ Accordingly, the presupposition weakens (x need not be equal to y) for reflexives on focal alternatives to *himself*, when the presupposition introduced by *self* is deemed not to have to hold, thereby licensing strict readings.

²⁵ For example, *The magnet attracted the metal filings to itself* can't be handled under the formulation in (44).

²⁶ It should be clear, incidentally, that some of these difficulties apply to options #1 and #2 as well, in addition to further difficulties not discussed here.

Third, there is no indication of how the trace of *self* as part of *himself* is interpreted, given that traces ought to be interpreted as copies. To assimilate (20a) to (20c), we basically need to assume that *self* leaves no interpreted trace or behaves as an identity function on individuals (thus mapping *him* to itself), both of which being ad hoc.

Finally, how do we address the long standing challenge (cf. e.g. Reinhart and Reuland (1993, section 2.2. p. 662)) facing approaches invoking predicate reflexivization to derive (rather than stipulate) that the reflexive pronoun argument or the *her* of *herself* is one that enters into the reflexive relation? To illustrate, in a clause like *PRO to assign him to myself*, we would want:

- (i) *self* to require covaluation of two arguments of *assign*: by hypothesis, this would mean that *self* is the identity function on predicates.
- (ii) *myself* to end up being interpreted like *me*: this would require *self* to be the identity function on individuals. This looks incompatible with the previous point: indeed, we want the moved *self* to take a predicate as argument, but its trace to take an individual as argument, or be uninterpreted.
- (iii) PRO being covalued with *me*, not with *him*: *self* would make *assign* reflexive on two arguments but the two arguments covalued would be PRO and *him*. This could perhaps derive from Condition B, but it looks implausible as Condition B can sometimes be overridden but the interpretation to exclude here is never available.

This last point requires somehow building into the analysis that the argument slot occupied by the reflexive is involved in the reflexive relation.

Some of these problems are solved by a modification to Sauerland’s analysis introduced in McKillen (2016, p.91), which proposes the following denotation for *self*:²⁷

$$(46) \quad [[\text{self}]] = \lambda x_e. \lambda P_{e,et}. \lambda y_e : x = y. P(x)(y)$$

This solves how *self* combines with a pronoun. It also makes sure that the pronoun first argument of *self*, the *her* of *herself* necessarily participate in the reflexive relation.

But this comes at a substantial cost. First, whereas *self* incorporation analyses are meant to derive that covaluation must hold between two DPs as a consequence of the incorporation, this formulation simply stipulates it. Second, *self* is defined as taking three arguments, one individual, one two place predicate and one argument of this predicate (and further stipulates that the antecedent of the anaphor must be a subject given the argument order). That some predicate take as argument an argument of an argument is a violation of a central theoretical assumption as it is a case of non local selection: this substantially increases the descriptive power of the grammar. It predicts for example that predicates could impose selectional restrictions on an argument of its complement, at best not a desirable move. Furthermore, this modification it is still subject to some of the same problems as Sauerland’s 2013 analysis in (44). Indeed, this analysis still requires movement of *himself* for examples such as (45), as well as in ECM cases (*She believes herself to have won*, because the reflexive is not a

²⁷ McKillen (2016) follows Sauerland (2013) in taking the covaluation of *x* and *y* to be presuppositional, but notes that this has no independent support (and faces some problems) and that it could equally well be construed as part of the assertion. Nevertheless, McKillen (2016) sticks with a presuppositional approach, as presupposition weakening can account for strict readings in focal alternatives or ellipsis. This motivation disappears under an account such as the one given in Charnavel and Sportiche (2021), which derives strict readings differently. I will continue talking about presupposition, but everything that follows could equally be stated in terms of assertion of covaluation.

sister to the relevant predicate, as acknowledged in McKillen (2016, p.109, fn 9) raising the same questions (status of the trace), as well as new ones, e.g. what properties does this movement have?²⁸

Finally, basic empirical problems subsists.

First, we noted that a unified treatment of reflexives and intensifiers seems out of reach, but questions also arise regarding the treatment of exempt *self* reflexives, which clearly do not obey a simple kind of locality such as reflexive predicate / reflexive sisterhood. Second, returning to the English examples in (19):

- (19) a. Connie thought that Toby identified himself as a spy
 b. Connie thought that Toby self-identified as a spy

we noted that the presupposition of covaluation encoded in (44) or (46) must be made world sensitive to allow *de re* but not *de dicto* covaluation in examples such as (19)a. But this cannot be right for (19)b which requires covaluation *de dicto*: why does *self* behave differently in these two cases?

The same holds for cases of focus alternatives or proxies. Presupposition can weaken in focus alternatives with *self*-DP reflexives (the motivation for treating covaluation as a presupposition), but not for *self*-reflexives, cf. examples discussed in section 3.3.1. And *self*-DP reflexives allow proxy readings while *self*-predicates do not, cf. examples discussed in section 3.3.2. Once again, postulating a single *self* seems out of reach.

But these behavioral differences are not limited to a difference between *self*-DP reflexives and *self*-predicates. Charnavel and Sportiche (2021) document differences between weak reflexives (glossed *himself*) and strong reflexives. Unlike the latter, the former preclude strict readings in focal constructions and ellipsis. How is this accounted for? It is also worth noting that weak reflexives do allow *de re* only covaluation with their antecedent and proxy readings (unlike what happens in *self*-predicates).

To conclude this section, I briefly discuss a very informal suggestion made by Dylan Bumford as it is informative in a different way. To handle the facts discussed in section 3.2, it postulates a functional analysis of *himself* and *self* as follows in (a) and (b):

- (47) a. $[[\text{himself}]]^w = \lambda v \lambda R \lambda x R(x_v)(x_w)$
 b. $[[\text{self}]]^w = \lambda R \lambda x R(x_w)(x_w)$
 c. $[[\text{self}]] = \lambda w \lambda R \lambda x R(x_w)(x_w)$

First, (47b) should be modified to (47c) (with λw saturated locally) to guarantee that covaluation holds for the attitude holder, as required, not for the speaker only.

Second, (47a) defines the reflexive to be a function taking a binary predicate R as argument whose two arguments are distinguished as is required: one is evaluated by the attitude holder (in w), the other not necessarily. This approach is (instructively) too weak. Indeed consider again:

²⁸ A plausible option is QR, as suggested in Lechner (2012) but it would have to be verified that QR locality is the right kind of locality. I am not sure it is. QR can escape tensed clauses (as shown in Fox, 2002 in the discussion of Tiedeman's puzzle); although QR of α cannot outscope a DP outside the tensed clause containing α , it can outscope a VP (I think this leads to overgeneration). Also, *John showed Mary himself* is fine, but the DO cannot outscope the IO in such cases., etc...

- (48) Elie, the high priest wants to placate the gods by sacrificing a member of the community. He says: I want to sacrifice the oldest member of the community! He does not realize it's him! But I do. I report:
- | | |
|---|--------------|
| a. Funny, Elie wants to immolate himself! | true |
| b. Funny, Elie wants to self immolate! | false |

In (48a), one of the variables is referentially valued by the speaker, not by Elie. The intent of (47a) is to allow this. But this now yields a functional *himself* that is too weak since there is no guarantee that the value of x in world v and the value of x in world w have any connection: the reflexive reading is lost. To illustrate, suppose that *the best student in the class* is Leila for me, the speaker, but is Lydia for Charles. Suppose Charles says: ‘the best girl in the class saw Leila’ to mean that Lydia saw Leila. The following report would be false: ‘Charles said that the best girl in the class saw herself’. Yet, it is predicted true by (47a) because its predicted meaning would be: Charles said that the person he takes to be the best girl in the class (namely Lydia) saw the person I take to be the best girl in the class (namely Leila). What is needed - this is discussed in detail in Sportiche (2022b) - is that the reflexive and its antecedent be covalued for someone (relevant).²⁹ To guarantee this result, (47a) could be modified to (stipulating that *himself* is anaphoric):

$$(49) \quad [[\text{himself}]]^w = \lambda R \lambda x R(x_w)(x_w)$$

This could in principle work although this faces some of the difficulties discussed above: (i) it is unclear how *himself* and *self* are compositionally related; (ii) there is no guarantee that the argument slot *himself* occupies participates in the reflexive relation; (iii) since *himself* is not necessarily a sister to the predicate it takes as argument, the syntax would have to be manipulated in ways that would need to be plausible.

It is of course always possible to set the bar lower: for example, to assume that the result of *self* incorporation is different from *self*-predicates despite the obvious similarities, or to postulate several lexical entries for *self* (or *own*), French *même* (or *propre*), Mandarin *ziji*, or to allow overgeneration in principle. But with good reasons to refrain from doing this and without solid reasons to do this, it is a recipe to give up explanatory analyses. In the present state of affairs, given all the difficulties catalogued above, I conclude that existing implementations of option #3 simply fail.

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²⁹ Furthermore, even if there was a connection between x_w and x_v , say x_w is the counterpart in w of x_v in v , this would be insufficient if Sportiche (2022b) is right in concluding that covaluation must be in the same world to meet binding condition A.

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