

*Constraints on Reflexivization**

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Dominique Sportiche[†]
UCLA

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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, 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 binding as in the classical view. I also discuss some boundary conditions on analyses for English *self*- (or French *auto*-) prefixed predicates, as well as inherently reflexive verbs.

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[†]Email contact: dominique.sportiche@ucla.edu

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1 Introduction

Overall, I discuss reflexive pronouns in English and French, and to a lesser extent German and Hebrew, showing why some widely held analyses (adicity reduction or predicate reflexivization via *self* movement or incorporation) cannot be right.¹ This applies to *self*-reflexive pronouns in English (*themselves*) and French (*elle-même*) as well as to SE reflexives (in Reinhart and Reuland, 1993's terminology) in German (*sich*) or French (*se*).

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*.

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 (2-a), French (2-b), German (2-c) and Hebrew (2-d), 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 reading arise in each case? Fundamentally, there are two approaches, each with subcases, as to how this can arise.²

1. The first approach, semantic arity reduction, postulates that semantically, in some, or all, of these cases, the predicate involved is $wash_R$, a variant of *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 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 be the same variable.

¹ More precisely, they 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.

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.

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 via predicate reflexivization.

First the interpretations of sentences in (1) will be discussed. It will be shown that the first approach, 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 bound 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.

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

- (2) a. Leila washed herself
 b. Leila s’est lavée *French*
 Leila se is washed
 c. Leila hat sich gewasht
 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 (2-e), it would be signaled by the absence of an otherwise required direct object, in (2-d), it would be signaled by the presence of the special verb morphology (*hitpa’el*), and in (2-b) 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 (2-a), German (2-b) or Hebrew (2-c), 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.

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 (2-d) or the presence of the particle *se* in French (2-b) 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.³ Similarly for (2-e) where the presence of an otherwise illicit silent DP object would signal that bundling has occurred. This extends to English (2-a) or Hebrew (2-c) 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 (2-d) or English (2-e), 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 returning $wash_R$, predicated of the appropriate argument of the verb (here the subject). This option, **arity reducing functional self** is adopted in Cresswell (1973), Bach and Partee (1980), Keenan (1987), Schlenker (2005), Spathas (2010), Lechner (2012), for example.⁴ Such an option requires a theory distinguishing the property of projecting a syntactic position from the property of this position getting a theta role or not. Or to put it differently, such an approach requires enriching the inventory of semantic types that are allowed as DP argument of predicates.

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 (2-a) or Hebrew (2-c), *himself/’acma* counts as an argument, a theta bearer. The way in which reflexivization is achieved is by making the predicate the reflexive pronoun is a dependent of reflexive. 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, i.e. 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

³ See Sportiche (2014a) for reasons why these constructions could not be unaccusative.

⁴ Difficulties of various sorts arise requiring some additional machinery e.g. (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 with *Henri seems to himself to be pale* where *Henri* is not an argument of *seem*.

(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 incorporates to *wash* taking *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 *selflexically* comes with. The literature does not specify, or entertain, how this would generalize to French *se* or German *sich*, English (2-e) or Hebrew (2-f), but there are imaginable ways to do this, e.g. assuming that they are associated with a silent object of the form *himself*.

4. Option #4: A final option is the classical option, **anaphor binding** adopted e.g. in Chomsky (1981), Heim and Kratzer (1998), Büring (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.

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 we know, speakers typically converge on the same mechanism(s) for a given strategy in a given language (as is almost always assumed⁵), 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 and a non trivial one (see Déchaine and Wiltschko, 2017 for suggested steps in this direction).

3 Constraints on Reflexivization via pronouns

We now examine some properties of reflexive constructions where reflexivization is coded via the presence of of pronominal element like with *X-self*, *se*, *sich*, *'acma* in English, French, German and Hebrew respectively.

3.1 No semantic adicity reduction

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

⁵ 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.

- (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 doxastic 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 (2019)). 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.

- (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. This raises an apparent problem for the Binding theory. The problem is that for Oedipus, *PRO* denotes Oedipus but *himself* does not. In Sportiche (2019), 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):⁶

- (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. 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 the right analysis, whatever it is, is strictly weaker, more permissive, than semantic adicity reduction, 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

⁶ 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.

reading. This seems like an unnecessary duplication⁷, 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 desirable⁸ I conclude that 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 doxastic alternatives yielding *de dicto* coreference, or for the speaker, that is in the actual world yielding *de re* coreference, or both.⁹ But as we will see shortly, this would require, rather implausibly, treating the *self* appearing as part of *himself* differently from the other occurrences of *self*, as well as unorthodox syntax (because of problems with *self* incorporation).

Option #4 would be straightforward: Condition A requires coreference but does not specify in which worlds coreference holds, 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, 2019).

3.2 *Self* marked Predicates

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* (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 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
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 the theme *se* denotes can be read *de re* non *de dicto*. The 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* nominal (contrasted with verbs with *sich selbst* instead of bare *sich*):

⁷ As noted, such a two option analysis is defended in Hovav and Doron (2009) in some cases.

⁸ Charnavel and Sportiche (2020) proposes such a unified treatments of *self* anaphora and *self* intensifiers.

⁹ [projection complications....

- (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 *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).¹⁰ First, 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 *Charles a auto évalué Maria/ Charles self evaluated Maria* is simply ill formed: if the anti assistive reading was an option, it should be well formed and mean 'Charles evaluated Maria without help'. Furthermore, a sentence such as *Henri s'est auto-évalué avec l'aide de Maria / Henri did a self evaluation with Maria's help* is not contradictory. This is also visible for example in a nominalization such as *self-evaluation/ auto-evaluation*: if *self/auto* could mean 'without help', this should be able to mean 'evaluation by someone of someone or other without help, which it can't. It must mean 'evaluation by someone of oneself. Finally, *auto* (and *self*) are compatible with stative predicates such as *connaître/knowledge* as in *s'auto-connaître, self-knowledge*, unlike the 'anti-assistive' usages which are not compatible with stative predicates (cf. Hole (2002)).¹¹

Coming back to the issue under discussion, 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, while the second is not. In the second, coreference must be *de dicto*. Henri must be thinking: "there is self-

¹⁰ 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 This said, English *self* does seem to allow anti-assistive readings. For example, in *The strong attendance for a self-produced poetry reading fired up Jane* ('Just Kids', Patti Smith, illustrated edition, 2018, p. 285), the reading is produced by the poet alone. In examples that follow in the text, two argumentns are missing, yielding a reflexive reading.

criticism”, 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 identified himself as a spy
 b. Connie thought that Toby self-identified as a spy

Here is a second example, using a trick from [Charlow \(2010\)](#) to help bring out the *de re* reading.

- (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, Charles wants to self immolate!

The first report is true, the second is false.¹²

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 3.5 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 (13-a) or (less easily) (13-b) but not (13-c):

¹² I found one (reliable) speaker of British English who felt that, while there was a contrast, the second example was true nevertheless. This may suggest a different syntax for the self-verb forms, one in which *self* is not treated as being in the spine.

- (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 (13-c) shows that the superficial subject is not an underlying object.

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

- (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 (14-a) be denied by uttering (13-c), showing that these *auto/self* verbs are not unaccusatives, it also can't be denied by uttering (13-b). In other words, while (12) allows both a sloppy reading deniable by (13-a) and a strict reading deniable by (13-b), (14-a) only allows the sloppy reading. Similarly, (14-b) 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 (14-a), and (14-b) only allow the sloppy reading. This corroborates the conclusion that treating cases like (12) by reducing them to cases like (14-a) or (14-b) via *self* incorporation is not viable.

The same facts can be reproduced with reflexive nominals. The truth of (16) can be felicitously denied by uttering (15-b) or (15-c) but not (15-d) (the possessive bolded to indicate they are 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.¹³

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

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

¹³ This correctly predicts that *Seules ses_k critiques par lui_k-même blessent Henri_k / Only his criticisms by himself hurt Henri* can be felicitously denied by (15-d), and not by (15-c).

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. Thus, there is a minimal contrast between examples (17-a) and (18-a):

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

3.4 Analytical Implications

This 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

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 (20-a) is turned into a one-place predicate applying to the antecedent of the reflexive (with no object projected) as in (20-b). This reinforces our earlier conclusion against option #1 and #2.¹⁴

¹⁴ 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
 Funny, Elie wants to immolate himself!

Whether these facts also exclude treatments in which the reflexive interpretation arises by turning it into a reflexive predicate without semantic arity reduction is less immediately clear as it depends on the specifics of its implementation.

I take as boundary condition that any explanatory theory has to satisfy the postulation of a unique element *self* appearing at the very least in both (20-a) and (20-b).¹⁵ Most treatments adopting (option # 2 or) option #3, e.g. Reuland (2011), Patel-Grosz (2013), Sauerland (2013) (substantially building on Lechner (2012)), Spathas (2017), do satisfy this requirement by taking option #3 to involve the syntax shown in (20-c) via (covert) *self* incorporation. The challenge such treatments face is to explain why (20-a) analyzed as (20-c) and structures such as (20-b) behave differently in the respects discussed, as well as those in sections 3.3.1 and 3.3.2.

Clearly such implementations of option #3 assimilate (20-c) to (20-b) are unable to account for the systematic differences between (20-a) and (20-b) we documented. It is worth pointing out in this respect, that making *self* a member of the syntactic spine, we expect the semantic contribution of *self* to have to be read *de dicto* as shown by the findings in Percus (2000),¹⁶ that is we expect the semantics we observe of (20-b).

On the other hand, *self* incorporation as a predicate reflexivizer is implausible as a general solution to the locality requirement reflexive pronouns are subject to for a variety of reasons discussed in 3.5 below: (i) it is incompatible with the syntactic distribution of reflexive pronouns like *himself*; (ii) it cannot be extended to French *lui-même* which behaves like *himself* in the relevant respect as *même* does not, and, being adjectival - cf. Safir (1996), cannot incorporate into verbs; (iii) is inconsistent with the internal syntax of *himself*, *lui-même* (and in fact other reflexive expressions such as Greek *o eaftos mu* - cf. Angelopoulos and Sportiche, 2019).¹⁷ One particular implementation of viewing *self* as functional as in option #3 may be able to circumvent the problems noted. We briefly discuss its contours in section 3.5 below.

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 (e.g. by assuming that they indeed involve semantic -arity reduction).

-
- 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.

¹⁵ In fact, I believe that this should also extend to the *self* morpheme used in intensifying reflexives. By this measure, no current analysis is satisfactory. I refer the reader to Charnavel and Sportiche (2020) for an attempt at unification.

¹⁶ Percus (2000) shows that the (covert) world pronouns such elements contain must be indexed (bound) to the closest binder, that is that such elements must be read *de dicto*.

¹⁷ Note also that trying to reduce the locality of reflexive binding to properties of an inalienably possessed *self* is unpromising, given the difference in distribution between reflexives and inalienably possessed elements, e.g. the data discussed in sections 3.3.1 (availability of strict readings) and 3.3.2 (proxy readings) neither of which is allowed in inalienable possession cases. For example, this view is adopted in Safir (1996) which takes the *self* of *himself* to be the conflation of a metonymic part/whole relation MET with the part of an individual noted *self*, seen as an (inalienably possessed) body part. The whole is the person referred to by *him* so that *Henri_i loves him_i self* means Henri loves him represented by (his) self. Inalienable possession is also appealed to in Déchaine and Wiltschko (2017) to derive locality requirements.

3.5 Some remarks on a functional *self* analysis

As mentioned, the analysis proposed in Lechner (2012) is a version of option #2 (semantic arity reduction) and therefore inadequate. However, it could be adapted along lines suggested in Sauerland (2013) and perhaps be viable, although the details of the analysis would have to be worked out. Here, I briefly sketch what it could look like.

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. This could be modified as follows. First, adapt what Sauerland (2013) proposes instead: Sauerland 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.¹⁸

(21) $\|\text{self}\|(P)(x)(y)$ presupposes that $x = y$ and denotes P.

We modify this to:

(22) $\|\text{him}_x\text{self}\|(P)(y, \dots)$ presupposes that $x = y$ and denotes P.

(i) where P is a predicate taking at least one individual argument y (this does not need to be stipulated: if P does not satisfy this condition, the presupposition cannot be satisfied).

(ii) where x is the argument position corresponding to the trace of *himself*: this guarantees that the reflexive relation must hold between the argument position *himself* occupies and some argument of P.

So *himself*, the pronoun *him* modified by *self* is like a Quantifier: it moves to acquire its second argument, leaving an individual trace x (interpreted as the trace of a pronoun, hence a pronoun). This QR like movement is not like *self* incorporation, it is a variety of phrasal movement: (i) it does not put *self* in the spine (so *self* need not be read *de dicto*) and (ii) it makes the sister of *himself* its second argument. The locality of anaphor binding is now derived as it is in Lechner (2012): it is the locality of QR, and the movement is motivated by the need for the anaphor to acquire its second argument. Crucially, it is not the locality of *self* incorporation which is too restrictive both in terms of distance (noun incorporation is much more strictly bounded, cf. Baker (1988)), and in terms of what it can apply to: this treatment extends straightforwardly to French *lui-même* (and could extend to Hebrew *'acmo*, or French *se* or German *sich* if we analyze them in part - some further restrictions would be needed - as *himself* in (22)). Note that unlike Lechner's or Sauerland's, this kind of implementation is an instance of option #4: it does take *himself* to be uniquely predicate functional, like other quantified DPs but it does not reflexivize any predicate directly.

As stated, a full implementation of this suggestion would have to be worked out. Command of the anaphor by its antecedent would have to be derived (I am not sure it can). It would have to be verified that QR locality is the right kind of locality.¹⁹

¹⁸ 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 (which, according to him, materializes for reflexives on focal alternatives to *himself*, when the presupposition introduced by *self* is deemed not to have to hold). Sauerland's formulation is thus binary relations only as below; 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.

¹⁹ 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

4 Explicitly marked or intrinsically reflexive predicates

4.1 Self-marked predicates

Let us briefly return to the difference between the first example below and the last two, limiting the discussion to suggestive remarks:

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

We assume that (23-a) is handled classically: *himself* is an anaphor subject to Condition A and *self* incorporation is not involved. 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*-prefixation such as (23-b) 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. The standard solution put forth in Distributed Morphology to this question of productivity question 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.

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

Recall that the French equivalent of English *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. Furthermore, the induced reflexive relation need not be between semantic arguments of the same predicate:

- (24) 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.

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...

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. This said, speakers do not reject novel forms, although they tend to be aware that they are novel.

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 (24-c) (although not on nouns or adjectives which do not license ECM/small clause complement 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:²¹

- (25) 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 covaluating two arguments of the predicate it modifies.

Let us now turn to how a syntactic treatment could be formulated. Start with a syntactic treatment along the lines suggested above in (22) for *himself* based on Lechner (2012) and Sauerland (2013). Assume as above that:

- (26) $||e_x self||(P)(y, \dots)$ presupposes that $x = y$ and denotes P.

where e is a silent argument and x is the argument position corresponding to the trace of *e-self* (or to e_x). Unlike in the general case of *himself*, when allowed, *self* raises as a head, taking the verb (or VP) as argument.²² French would be similar but with *auto* not licensing an overt possessor and with mandatory *auto* movement. Due its presupposition, *self/auto* requires its trace to be covalued with the subject of the verb. This extends to nouns *self knowledge* = *knowledge of oneself* or adjectives *self confident* = *confident in oneself*, *self addressed* = *addressed to oneself*.

What needs to happen, given the necessarily *de dicto* reading of such constructions, is that *self/auto* ends up in the spine, as expected if *self/auto* takes a predicate as argument. Classic incorporation may thus not be quite what is involved. Instead, remerging the head in the spine above VP is more consistent with these requirements.²³ That this movement (or simply the merging) is syntactic in French is independently supported by the possibility for *auto* to merge higher or lower than *re*:

- (27) 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

²¹ In the English participle case, it seems that the predicate nominal - *king*, *expert*, *prophet*, *murderer* - must be relativized: 'the self proclaimed king = the king who proclaimed himself king'. In French, this is not required: 'le bandit auto proclamé roi = the bandit who proclaimed himself king'. This needs to be investigated further.

²² Note that nothing prevents the same derivation in the presence of *him* yielding fewer readings than *himself* movement.

²³ The distribution of *self* with participles, adjectives and nominals bear on their argument structure. In simple structures, *self* is only allowed on predicates that have at least two arguments and covalues two of these arguments. This shows that passive participles such as *self taught* ...

- c. Charles s' est auto ré évalué
 Charles se is self re evaluated
 Charles re evaluated himself
- d. Charles s'est lui-même ré évalué
 Charles se is himself re evaluated
 Charles has himself reevaluated himself

Sportiche (2012) shows that French *re* basically behaves like an 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 (27-a), 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 (27-b) is not ambiguous. As *re* outscopes *auto* what is repeated is Charles performing a self-evaluation: adding *auto* here is not redundant. It removes the possibility that the first evaluation was done by someone other than Charles.

In sentence (27-c), *auto* is added to 'Charles s'est réévalué' with *auto* outscoping *re* and adding that a reflexive relation holds even though this is already encoded with *s(e)*. *Auto* is thus redundant but it is felicitous as a way to emphasize that the reevaluator is Charles (and not someone else). If (27-a) is interpreted restitutively (someone evaluated Charles, and then Charles did it), adding *auto* to yield (27-c) emphasizes that the reevaluator was Charles himself (instead e.g. of the first evaluator). Second, if (27-a) is interpreted repetitively (Charles evaluated himself, and then Charles did it again), adding *auto* to yield (27-c) emphasizes that the reevaluator was Charles himself (instead of someone else redoing it). So the resulting meaning is very similar to that of (27-d).^{24,25}

Hebrew *hitpa'el* (as in (28-a), 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* ((24-a) without *auto/self* is well formed) in ECM/small clause cases, Hebrew does not.

- (28) 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 (28) 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

²⁴ This of course very much recalls the behavior of German emphatic *selbst*, *sleber* or English emphatic reflexives *himself* discussed e.g. in Gast (2006). I do not think however that *auto* needs to be prosodically marked here, unlike these emphatic items

²⁵ In English, *re-* has a much more limited distribution but the same facts can partially be observed in English, 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.

there is nothing specifically reflexive in (28-b), 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).

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

4.2 Inherently Reflexive Predicates

Finally, consider verbs that look inherently or lexically reflexives:

(29) 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 an 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:

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

With this background, consider the following:

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

Speakers report this as a well formed discourse.²⁶ Given that the shaver is not Charles the

²⁶ The French verb *se suicider/ commit suicide* behaves differently: *Lydia a tué Charles, il est revenu à*

first time around, this means (31-b) 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 (31-b) is syntactically transitive. This could be handled by taking the VP in (31-b) (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: ex.

- 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) and could this be analyzed as modifying VP, which would be consistent with the general observation that manner adverbials are structurally the lowest adverbs.

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

- (32) 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, the silent *self*, this object would have to mandatorily incorporate/ move to the spine 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”. These notions are unclear, and it is just unclear that the frequency of use is mostly 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.

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*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.

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