To Reconstruct or Not to Reconstruct
That is the Question

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Abstract. The aim of this study is to use what is traditionally referred as A'-reconstruction in order to compare two possible formalizations of syntax-semantics interface, one based on Generative Grammar and Logical Form (GG), the other built on Categorial Grammar and Variable-Free Semantics (CG-VFS). Considering mainly reconstruction data with resumption in natural language (from French and Jordanian Arabic mostly), I will first give several arguments suggesting that both analyses could be on the right track, both theoretically (both accounts of distributive/reconstructed readings amount to an *e*-type interpretation of the resumptive pronoun) and empirically (both formalizations correctly predict distributive/reconstructed readings within syntactic islands). Finally, I will present two generalizations about resumption which seem to favor the GG account based on actual reconstruction, one concerning the type of distributive reading (functional *vs* pair-list), the other linked to a distinction between weak and strong resumption.

1 Reconstruction data

1.1 Binding and Scope Reconstruction

The notion of reconstruction traditionally refers to the interaction between displacement structures (dislocation, topicalization, interrogation, relativization) and interpretation procedures such as binding conditions or scope[1]. The following examples in (1) and (2) (from French, similar examples in many languages such as English, Jordanian Arabic,...) illustrate binding reconstruction and scope reconstruction respectively with interrogation[2]:

(1) *Quelle photo₁ de lui₂ est-ce que chaque homme₂ a déchirée __₁ ?*
     'Which picture of him(self) did each man tear?'
     Celle de son mariage.
     'The one from his wedding'

(2) *Quelle femme₁ est-ce que chaque homme invitera __₁ ?*
     'Which woman will each man invite?'
     Son épouse.
     'His wife'

Both (1) and (2) correspond to what Engdahl (1980) or Jacobson (1999) call functional questions as they can have a distributive reading of the *wh-* constituent with respect to the universal quantifier. Consider indeed possible functional answers for (1) and (2). In terms of reconstruction, such distributivity can be seen as following either from presence of a potentially bound variable in the peripheral constituent (*lui* in (1)), or from the indefinite property of that constituent (*quel patient* in (2)[3]); and more precisely the fact that these two scope-sensitive items could be interpreted as if they were (partly) within the scope of the universal quantifier *chaque*.

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[1] Notice here that I'm using the term reconstruction in its broad meaning, referring to the general phenomenon; the term may also refer to a particular analysis of the phenomenon, based on what I will call literal/actual/syntactic reconstruction.

[2] This study focuses mainly on reconstruction of bound variable anaphora, hence binding reconstruction.

[3] For more arguments to analyse interrogative constituents as indefinites, see Reinhart (1997) among others.

1.2 Reconstruction and Resumption

The notion of resumption corresponds to a detachment strategy in natural language by which a pronoun, instead of a gap, occupies the thematic position of the detached constituent, hence resuming or doubling that constituent. As reconstruction is crucially tied to displacement structures, its potential interaction with resumption comes as no surprise. And a major property of resumption first noticed by Aoun et al. (2001) is the fact that it does allow for functional reconstructed readings[4]. Consider indeed the following example of French dislocation:

(3) *La photo de sa$_2$ fille, chaque homme$_2$ **l**'a déchirée.*
     'The picture of his daughter, each man tore it.'

The sentence in (3) is clearly grammatical under the intended reading, one where the dislocated constituent *la photo de sa fille* 'the picture of his daughter' is interpreted distributively with respect to *chaque homme* 'each man'. In other words, the possessive *sa* 'his' can be interpreted as a variable bound by the universal quantifier.

1.3 Traditional assumption about reconstruction and distributive readings

Most traditional accounts of data like (1) to (3) tend to rely on a direct implication between functional reading of a displaced constituent and presence of syntactic movement of that constituent. The implication is obvious when considering the most popular account of binding reconstruction data as in (1). Such data are accounted for through the copy theory of movement, a syntactic mechanism given by Lebeaux (1990), Chomsky (1995) or Sauerland (2004) among others, to license interpretation of a displaced constituent in its base position. Consider indeed the representation of (1) under such assumption:

(4) *Quelle photo$_1$ de lui$_2$ est-ce que chaque homme$_2$ a déchirée ~~photo$_1$ de lui$_2$~~?*
     'Which picture of him(self) did each man tear ~~picture of him(self)~~?'

Bound variable interpretation of *lui*, and consequently distributive reading of the interrogative constituent, follows straightforwardly from the structural configuration between the universal quantifier and the copy left by movement of *quelle photo de lui*.
    To illustrate the implication with respect to what I call scope reconstruction, consider Engdahl (1980)'s approach to functional questions such as in (2). Her account is essentially based on the existence of complex traces, and more precisely functional traces. The representation in (5) illustrates how the functional reading of (2) is obtained under her account:

(5) *Schema for (2):*
     SYN: quelle femme$_1$ est-ce que chaque homme$_2$ invitera $t_{1(2)}$
     SEM: $\lambda p \exists g_{\langle e,e \rangle}.[range(g) = woman' \wedge p = \forall y.[man'(y) \rightarrow invite'(y, g(y))]]$
     $\Rightarrow$ *What is the function g ranging over women such that every man$_y$ tore g(y)?*

As shown in (5), the functional reading of the question crucially relies on the existence of a complex index on the syntactic trace left by movement of the constituent *quelle femme* 'which woman'.
    Notice finally that data such as in (3) where resumption is at stake have also received an account based on syntactic movement in traditional literature. Aoun et al. (2001) thus propose that functional readings in such cases follow from movement of the displaced constituent (what they call *apparent resumption*), and more precisely presence of a syntactic copy adjoined to the resumptive clitic[5].

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[4] Aoun et al. (2001)'s study is based on dislocation in Lebanese Arabic, while this paper focuses mainly on French data, and also Jordanian Arabic.
[5] For more details, see Aoun et al. (2001).

To summarize, data involving distributive/functional/reconstructed readings have often found an account essentially based on presence of syntactic movement. The following section will present two accounts, based on two different models of syntax-semantics interface, which do not rely (exclusively or at all) on that direct implication between reconstructed readings and syntactic movement.

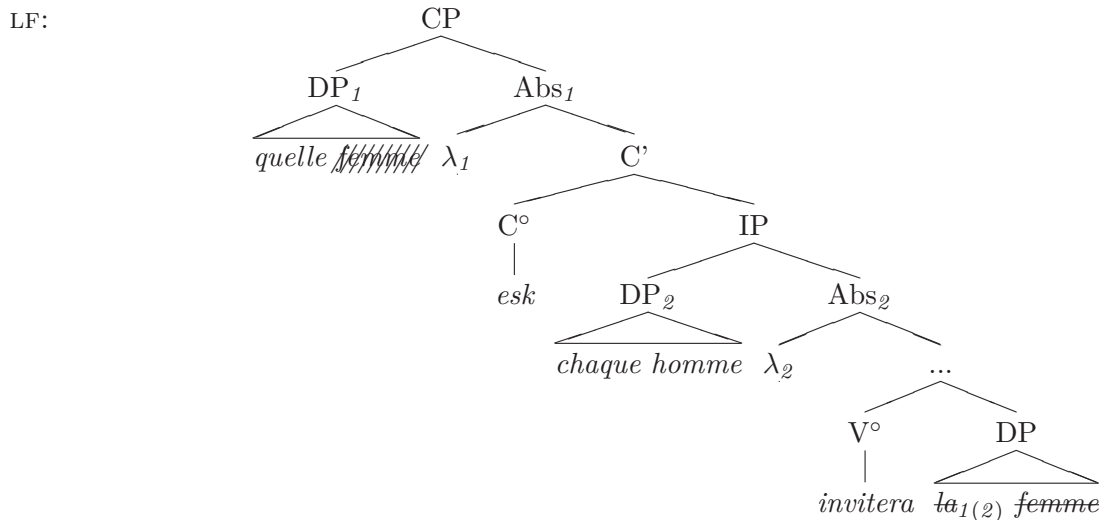## 2   Two models of syntax-semantics interface for two accounts

In this section, I will introduce two novel accounts of data from (1) to (3). The first account, which I will dub the *if I were Irene Heim*'s analysis, corresponds to latest improvements on such issues in Generative Grammar (GG). The second account, the *if were Pauline Jacobson*'s analysis, corresponds to another model of syntax-semantics interface, based on Categorial Grammar and Variable-Free Semantics (CG-VFS).

2.1   Account #1 (GG): If I were Irene Heim

Under a GG model of syntax-semantics interface, i.e. if I were Irene Heim (Heim and Jacobson (2005)), I would probably analyse the functional readings in (1), (2) and (3) as cases of literal reconstruction. Under such a view, functional readings (and the bound variable readings of *lui* and *sa*) follow from presence of a syntactic copy of the displaced constituent (in the thematic position), resulting either from syntactic movement, or crucially from ellipsis on the resumptive clitic when resumption is at stake.

Gaps (traces) as syntactic copies. In the present account, gaps left by syntactic movement are analysed as syntactic copies. More precisely, Heim and Jacobson (2005), following Fox (2003), argues that syntactic copies can be interpreted as definite descriptions[6]. Consider again example (2) and its Logical Form (LF) and semantic representations below:

(6)   *Schema for (2) under a GG account:*

LF:
CP
DP$_1$ Abs$_1$
quelle ~~femme~~ λ_1 C'
C°   IP
esk   DP$_2$ Abs$_2$
chaque homme λ_2 ...
V°   DP
invitera   ~~la~~$_{1(2)}$ ~~femme~~

SEM: $\lambda p \exists g_{\langle ee \rangle}.[p = \forall y.[man'(y) \rightarrow invite'(y, g(y))]]$
presupposition: $\forall g.[g \in C \rightarrow \forall y.[man'(y) \rightarrow woman'(g(y))]]$
$\Rightarrow$ *What is the function $g_{\langle ee \rangle}$ such that each man$_y$ will invite the$_{g(y)}$ woman (with presupposition that contextually salient functions g map men to women)?*

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[6] This assumption corresponds to Fox (2003)'s notion of *Trace Conversion*, a syntactic mechanism to transform gaps/traces into definite descriptions composed of a determiner and a predicate restriction (the restriction of the moved item).

As shown in (6), the present account for functional questions relies on (i) presence of a syntactic copy interpreted as a definite description, and (ii) existence of a complex/functional index on the definite determiner, in a similar way that traces could be complex/functional in Engdahl (1980)'s account. Notice here that the definite property of syntactic copies automatically gives rise to a presupposition over the function. Also notice that such analysis straightforwardly account for cases of binding reconstruction in similar context, such as in (3) repeated below:

(7) *Quelle photo$_1$ de lui$_2$ est-ce que chaque homme$_2$ a déchirée __$_1$?*
     'Which picture of him(self) did each man tear?'
     Celle de son mariage.
     'The one from his wedding'

Bound variable reading of *lui* 'himself' in this example is now predicted, as the anaphoric item can be interpreted within the syntactic scope of the universal quantifier.

Resumptive pronouns as definite descriptions. As for functional readings with resumption, a similar account can be given, based on syntactic copies, hence literal reconstruction, but with one further assumption. I argue, following Guilliot and Malkawi (2006) and Guilliot (2006), that the syntactic copy does not result from movement, but rather ellipsis on the resumptive clitic. That assumption corresponds to an analysis of pronouns as definite descriptions in the sense of Elbourne (2002), i.e. a determiner (the pronoun) and an elided restriction[7]. Consider now the syntactic representation for (3) in (8) below:

(8) *La photo$_1$ de sa$_2$ fille, chaque homme$_2$ a déchiré [$_{DP}$ l(a)$_1$ [$_{NP_\delta}$ ~~photo de sa$_2$ fille~~]]*
     The picture of his daughter, each man tore [$_{DP}$ it [$_{NP_\delta}$ ~~picture of his daughter~~]]

Distributive reading of both the displaced constituent *la photo de sa fille* and the resumptive clitic *l(a)* in (3) follows nicely from syntactic reconstruction of the anaphoric item *sa* within the scope of the universal quantifier, hence allowing for a bound variable interpretation.

The GG account proposed here can be summarized with the following generalizations:

Generalization #1: *A (resumptive) pronoun can be interpreted as a definite description, i.e. as a determiner and an elided restriction (see Elbourne (2002)).*

Generalization #2: *Syntactic copies can be interpreted as definite descriptions (see Fox (2003) or Heim and Jacobson (2005)).*

2.2 Account #2 (CG-VFS): If I were Pauline Jacobson

But if I were Pauline Jacobson (Jacobson (1999) or Heim and Jacobson (2005)), i.e. under a model of syntax-semantics interface based on Categorial Grammar (CG) and Variable-Free Semantics (VFS), I would rather analyse such functional/distributive readings in (1), (2) and (3) without any reference to reconstruction. More precisely, I argue that two fundamental and independent assumptions within Variable-Free Semantics suffice to account for data discussed in Sect. 1. One concerns the way binding is implemented, the other being tied to treatment of anaphoric expressions such as pronouns in VFS.

As pointed out by Jacobson (1999), the primary objective of VFS is to claim that one can dispense with intermediate representations such as Logical Form in order to account for well-known phenomena with respect to syntax-semantics interface. In VFS, semantic calculus is developed directly from surface structure, and results from direct composition of each syntactic

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[7] For more details and arguments on the analysis of pronouns as determiners, see Elbourne (2002).

constituent through instances of functional application or compositional rules (similar to type-shifting rules)[8]. Jacobson (1999) also rejects the notion of variable as a theoretical object, and dispenses with indices in syntax. A consequence of such an approach concerns the way pronouns should be interpreted. Pronouns in VFS are analysed as identity functions over individuals or functions ($\lambda x.x$ or $\lambda f_{\langle e,e\rangle}.f$), that individual or function being just provided by the context. To illustrate how semantic composition works, consider the following example:

(9)   *He left.*
    -$[\![he]\!]=\lambda x.x$ (type $\langle e,e\rangle$)
    -$[\![left]\!]=\lambda y.y\ left$ (type $\langle e,t\rangle$)

Obviously, analysing pronouns as identity functions leads to apparent semantic incompatibility between *he* and *left*. This is where compositional rules come into play, and more precisely what Jacobson (1999) calls *Function Composition*:

(10)   **Function Composition:** if α and β are respectively of type $\langle \sigma, \tau\rangle$ and $\langle a, \sigma\rangle$, then $[\![\alpha\beta]\!]=[\![\alpha]\!]\circ[\![\beta]\!]=\lambda V_a.[\![\alpha]\!]([\![\beta]\!](V))$.

The meaning of *he* and *left* can now be composed very easily:

(11) $[\![he\ left]\!]=[\![left]\!]\circ[\![he]\!]=\lambda x_e.[\![left]\!]([\![he]\!](x)) = \lambda x_e.[\![left]\!](\lambda y.y(x))=\lambda x.x\ left$

As you can see from the output of semantic composition, the denotation of *he left* in VFS looks very similar to the denotation of *left*, except that the former is syntactically and semantically saturated: the open slot (here the individual x) just needs to be pragmatically saturated, i.e. to be provided by the context. Notice that such composition corresponds to unbound readings of pronouns. More generally, VFS system is developed in such a way that any expression containing an unbound pronoun will have a similar semantic output with an open slot, as shown by the following examples:

(12)   a. $[\![Mary\ saw\ him]\!]= \lambda x.Mary\ saw\ x$

    b. $[\![the\ picture\ of\ his\ daughter]\!]= \lambda x.\iota y.y\ is\ the\ picture\ of\ x's\ daughter$

Another crucial aspect of VFS concerns the way binding is implemented, i.e. bound readings of pronouns are obtained. Binding in VFS is crucially based on another compositional rule, the *z-rule*, and crucially not via a syntactic requirement like c-command:

(13)   **z-rule:** Let α be an expression of the form $\langle[\alpha],[\![\alpha]\!]\rangle$. Then there is an expression β of the form $\Big\langle[\alpha],\quad z[\![\alpha]\!] = \lambda f_{\langle e,e\rangle}[\lambda x[[\![\alpha]\!](f(x))(x)]]\Big\rangle$

Consider now the following example where *z-rule* is at stake:

(14)   *John loves his mother.*

Intuitively, a predicate like *love* denotes a relation of type $\langle e,\langle e,t\rangle\rangle$. But, it shifts by *z-rule* to denote a relation of type $\langle\langle e,e\rangle,\langle e,t\rangle\rangle$ such that *z(love)* a function f of type $\langle e,e\rangle$ is to be an x such that x ordinary loves $f(x)$. The detailed composition is given below:

(15) $[\![John\ z(loves)\ his\ mother]\!]=[\![z(loves)]\!]([\![his\ mother]\!])([\![John]\!])$
        $=[\lambda f.\lambda x.[\![loves]\!](f(x))(x)](\lambda y.the\ mother\ of\ y)(John)$
        $=[\lambda x.[\![loves]\!]([\lambda y.the\ mother\ of\ y](x))(x)](John)$

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[8] In this study, I will only concentrate on VFS, as the account for functional readings in this model does not pertain to syntax (CG) at all. Just bear in mind that that direct composition between the constituents is also restricted by syntax, and each compositional rule has a syntactic correspondence. For more details, please refer to Jacobson (1999).

$$=[\lambda x.[\![loves]\!](the\ mother\ of\ x)(x)](John)$$
$$=[\![loves]\!](the\ mother\ of\ John)(John)$$
$$=[\lambda v.\lambda k.k\ loves\ v](the\ mother\ of\ John)(John)$$
$$=John\ loves\ the\ mother\ of\ John$$

Gaps as ... nothing. Having introduced the basic tools of VFS, we can now see how such model can very easily account for functional questions such as the one in (2) repeated here:

(16) *Quelle femme est-ce que chaque homme invitera?*
'Which woman will each man invite?'
Son épouse.
'His wife'

Such functional readings come as no surprise in VFS. And compared to the GG account, there is no need to introduce complex/functional indices on traces or copies. Even the notion of trace is not necessary in that system. In other words, gaps are treated as what they are on the surface: merely nothing. Consider indeed what would be the result of semantic composition of *chaque homme invitera* 'each man (will) invite', using only *Function Composition* and *z-rule*:

(17) $\beta=$ z(invitera) $\rightarrow$ type $\langle ee, et \rangle$
$\alpha=$ chaque homme $\rightarrow$ type $\langle et, t \rangle$
$[\![chaque\ homme\ z(invitera)]\!]=[\![chaque\ homme]\!]\circ[\![z(invitera)]\!]$
$$=\lambda f_{\langle e,e \rangle}.[\![chaque\ homme]\!]([\![z(invitera)]\!](f))$$
$$=\lambda f_{\langle e,e \rangle}.[\![chaque\ homme]\!]([\lambda h.\lambda x.[\![invitera]\!](h(x))(x)](f))$$
$$=\lambda f_{\langle e,e \rangle}.[\![chaque\ homme]\!](\lambda x.[\![aime]\!](f(x))(x))$$
$$=\lambda f_{\langle e,e \rangle}.[\lambda P.\forall y.homme(y) \rightarrow P(y)](\lambda x.[\![aime]\!](f(x))(x))$$
$$=\lambda f_{\langle e,e \rangle}.[\forall y.man(y) \rightarrow [\lambda x.[\![aime]\!](f(x))(x)](y)]$$
$$=\lambda f_{\langle e,e \rangle}.[\forall y.man(y) \rightarrow [\![aime]\!](f(y))(y)]$$
$$=[\lambda f.[\forall y.man(y) \rightarrow [\lambda x.\lambda v.v\ will\ invite\ x](f(y))(y)]]$$
$$=[\lambda f.[\forall y.man(y) \rightarrow [\lambda v.v\ will\ invite\ f(y)](y)]]$$
$$=[\lambda f.[\forall y.man(y) \rightarrow y\ will\ invite\ f(y)]]$$

What is crucial about this output is the presence of an open slot corresponding to a function f of type $\langle e, e \rangle$, i.e. precisely what is needed to account for the functional reading of the question. That semantic output then presumably occurs as argument of *quelle femme* 'which woman', leading to the following interpretation:

(18) *What is the function $f_{\langle ee \rangle}$ ranging over women such that each man y will invite f(y)?*

Resumptive pronouns as ... pronouns. Very interestingly, cases of functional readings with resumption can also be given a straightforward account in VFS. Consider again example (3) repeated below:

(19) *La photo de sa fille, chaque homme **l**'a déchirée.*
'The picture of his daughter, each man tore it.'

The basic idea consists in analysing the resumptive clitic as a pronoun, i.e. as the identity function. To account for the functional reading of that clitic, I just argue that it is interpreted as the identity function over skolem functions of type $\langle e, e \rangle$, instead of individuals. As the schema in (20) shows, (3) can now be seen as a kind of coreference over functions (rather than individuals), a coreference between the (resumptive) clitic *l(a)*, introducing an open slot for a skolem function, and the dislocated element *la photo de sa fille*, introducing the context and hence providing that skolem function.

(20) *Schema for (3) under (CG-)VFS:*
      -⟦la photo de sa fille⟧ $= \lambda x.\iota y.y$ *is the picture of x's daughter*
      -⟦la⟧ $= \lambda f.f$
      -⟦chaque homme a déchiré l(a)⟧ $= \lambda f.[\forall x.man(x) \rightarrow x \ tore \ f(x)]$
      with f given by the displaced constituent: $f = \lambda x.\iota y.y$ *is the picture of x's daughter*

Intuitively, the resumptive clitic is interpreted as both unbound (absence of *z-rule*) and functional (identity function over skolem functions). Only the context, here the dislocated constituent, provides that skolem function.

To summarize, functional/distributive/reconstructed readings in displacement structures can be given a straightforward account without literal reconstruction if one follows Jacobson (1999)'s model of syntax-semantics interface based on CG and crucially VFS.

3   Comparing the Two Accounts

The goal of this section is to compare the two accounts proposed in Sect. 2. I will first give empirical and theoretical arguments in favor of both accounts, before turning to further data concerning resumption that seem to favor the GG account.

3.1   Both Accounts on the Right Track?

Comparing the two accounts both theoretically and empirically, the first conclusion one can give is the fact that both seem to be on the right track. The first argument for such conclusion is theoretical: the fact that whatever the model of syntax-semantics interface, both accounts of functional readings of resumptive pronouns correspond to an *e*-type analysis of resumption. The second argument is empirical: the fact that both account get rid of syntactic movement as initial requirement, hence correctly predicting functional readings in syntactic islands.

An E-type Phenomenon. Very interestingly, both accounts proposed in Sect. 2 rely on the same fundamental generalization about resumptive pronouns, the fact that they can be interpreted as *e*-type.

Aside from the traditional bound variable (BV) interpretation, several studies demonstrated that covariation of an anaphoric expression could result from another phenomenon, traditionally referred as *e*-type or *donkey anaphora*. The notion of *e*-type was introduced by Evans (1980) in order to deal with those sentences in which pronouns display a covarying interpretation that cannot be attributed to a BV interpretation. Consider the following classical example of *e*-type phenomenon:

(21) a. *John gave **his paycheck** to his mistress. Everybody else put **it** in the bank.*

      b. *Every man loves **his mother**, but no man marries **her**.*

The pronouns *it* and *her* in (21a) and (21b) can have an *e*-type interpretation, i.e. a covarying reading in the sense that it can refer to a different *paycheck* or *donkey* with respect to *each person* or *farmer*. Notice that such covariation can not result directly from BV interpretation.

Intuitively, covariation of *e*-type anaphora can be attributed to distributive potential of the antecedent *his paycheck* or *his mother*, as both contain a potentially bound variable (the possessive *his*). That intuition corresponds precisely to Elbourne (2002)'s formalization of *e*-type anaphora, who proposes to analyse such pronouns as definite descriptions composed of a determiner (the pronoun) and an NP complement which has been elided under identity. Consider now the representation of (21a) under this assumption:

(22) *John₁ gave his₁ paycheck to his mistress. Everybody₂ else put [$_{DP}$ it [$_{NP_\delta}$ ~~paycheck of him₂~~]] in the bank.*

Presence of the bound pronoun *him* in the elided copy straightforwardly accounts for the covarying or *e*-type interpretation of *it*. Also recall that functional readings with resumption are given the same account based on presence of an elided copy containing a bound pronoun. In other words, functional reading of the resumptive clitic in (3) just corresponds to an e-type interpretation of the resumptive under a GG account.

Under VFS account, functional readings of resumptive pronouns also correspond to an e-type phenomenon. Jacobson (1999) basically argues that e-type pronouns are interpreted as identity functions over functions in her system. Consider indeed semantic composition of (21b) within VFS:

(23)   *Schema for (21b) under (CG-)VFS:*
       -⟦his mother⟧ $= \lambda x.\iota y.y$ *is* $x's$ *mother*
       -⟦her⟧ $= \lambda f.f$
       -⟦no man marries her⟧ $= \lambda f.[\neg\exists x.man(x) \rightarrow x$ *marries* $f(x)]$
       with f given by the context: $f = \lambda x.\iota y.y$ *is* $x's$ *mother*

In the same way that functional readings with resumption can be seen as a coreference over functions between the (resumptive) clitic *l(a)* and the dislocated element in (3), that classical example of *e*-type phenomenon just corresponds to a coreference between the *e*-type pronoun *her* and its potential antecedent *his mother*. So, both examples can be seen as instances of *e*-type phenomenon.

To summarize, the generalization that functional readings with resumption correspond to an *e*-type phenomenon is theoretically reinforced: via NP-ellipsis for GG account (a la Elbourne (2002)), and via identity function over functions ($\lambda f.f$) under VFS. And the fact that both accounts rely on the same generalization also gives more credit to each account of functional readings.

Islandhood. Compared to the traditional approach to reconstructed readings based exclusively on presence of syntactic movement, one major argument for the two accounts proposed in the preceding section concerns syntactic islands. As first pointed out in Guilliot and Malkawi (2006), functional readings with resumption also occur in presence of syntactic islands. Consider indeed the following examples from French in (24)[9]:

(24)   a.   *Le livre₁ qu'il₂ a emprunté, je suis fâché parce qu'aucun étudiant₂ ne **l₁** 'a rapporté.*
             'The book he had borrowed, I'm furious because no student brought **it** back.'

        b.   *?Quelle photo₁ de sa₂ fille est-ce que tu te demandes si chaque homme₂ **l₁** 'a gardée?*
             'Which picture of his daughter do you wonder whether each man kept **it**?'

Interestingly, both examples in French are grammatical under the intended reading, one in which the displaced constituent and the resumptive clitic are interpreted distributively. Notice here that any analysis of functional readings relying exclusively on presence of syntactic movement cannot account for such data as syntactic reconstruction would be blocked by presence of the adjunct island in (24a) or the *wh-* island in (24b). Under the two accounts proposed in this study however, functional readings in (24) are correctly predicted, as no syntactic movement is at stake in both cases: the relation between the displaced constituent and the resumptive clitic is based either on ellipsis (for the GG account), or on a kind of coreference over functions (in VFS).

3.2   Teasing the Two Accounts Apart

This section introduces further data with resumption, and more precisely two generalizations about resumption which seem to favor the GG account based on literal reconstruction. The

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[9] Similar data in Jordanian Arabic can be found in Guilliot and Malkawi (2006).

first one concerns a famous distinction between two kinds of distributive readings in questions: functional reading *versus* pair-list reading. The second generalization is linked to another well-known distinction between two kinds of anaphoric expressions: weak anaphoric expressions such as clitics *versus* strong anaphoric expressions such as strong pronouns and epithets.

Pair-list vs Functional Readings. As pointed out in Sharvit (1997), resumption, contrary to a gap, allows for a functional reading, but does not allow for what is called a pair-list (PL) reading[10]. Consider indeed the following contrast in (25) from French, and more specifically the possible answers for each sentence[11]:

(25) a. *Quelle photo$_1$ de lui$_2$ est-ce que chaque homme$_2$ a déchirée __$_1$?*
'Which picture of him(self) did each man tear?'
Celle de son mariage. (funct. answer)
'The one from his wedding'
Pour Jean, c'est celle de sa naissance; Paul, celle de son mariage,... (PL answer)
'For John, the one from her birth; Paul, the one from her wedding,...'

b. *Quelle photo$_1$ de sa$_2$ fille est-ce que tu te demandes si chaque homme$_2$ l$_1$ 'a gardée?*
'Which picture of his daughter do you wonder whether each man kept **it**?'
$\sqrt{}$*Celle de son mariage* (funct. answer)
'The one from her wedding'
*Pour Jean, c'est celle de sa naissance; Paul, celle de son mariage,... (PL answer)
'For John, the one from her birth; Paul, the one from her wedding,...'

As confirmed by such contrast, the PL reading is only available with a gap, i.e. in absence of any resumptive element. I argue that such contrast can be accounted for in a GG framework whereas it is left unexplained under Jacobson (1999)'s account of functional questions. Notice that the CG-VFS account is empirically based on Engdahl (1980), for whom a pair-list reading just corresponds to the extension of the functional reading. However, such direct implication from functional reading to PL reading incorrectly predicts that PL reading should be available with resumption.

However, such generalization can be accounted for in a GG account if we assume that a PL reading follows from the notion of scope reconstruction (as intuitively stated in the first section). Following Aguero-Bautista (2001), I argue that such PL reading is fundamentally tied to interpretation of the copy as indefinite, and more precisely as a skolemized choice function f (CH) of type $\langle\langle e,t\rangle,\langle e,e\rangle\rangle$[12]. To illustrate the analysis of a PL reading, consider the representations of (25a) given below:

(26) LF: *Quelle ~~photo de lui~~ λ_1 est-ce que chaque homme λ_2 a déchirée ~~$f_1{}^2$ (photo de lui$_2$)~~?*

SEM: $\lambda p.\exists f.[CH_s(f) \land p = \forall x.[man'(x) \rightarrow tore'(x, f(picture\ of\ x')(x))]]$
$\Rightarrow$ *What is the skolemized choice function $f_{\langle et,ee\rangle}$ such that each man$_x$ tore f_x(picture of x)?*

Presence of the skolemized choice function gives rise to the PL reading as it corresponds to a set of arbitrary pairs between a man and a picture of that man. In other words, the relation between the two can be different, contrary a functional reading.

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[10] Sharvit (1997)'s study was essentially based on data from Hebrew.

[11] As shown by the question mark, (25b) is slightly degraded, like any case of resumption with questions in French. Resumption in questions is only acceptable when an island occurs, and still has a marginal status in French.

[12] A skolemized choice function takes two arguments, an individual and predicate defining a set of entities, and returns an entity of that set. It was first introduced in Kratzer (1998) to account for specific interpretation of indefinites. For more details, see Kratzer (1998).

Weak vs Strong Resumption. Another generalization about resumption might appear problematic under VFS account: the fact that the distinction between weak versus strong resumption plays a role with respect to functional readings of resumption. A pointed out by Guilliot and Malkawi (2007), functional readings with resumption within islands only arise with weak resumptives (clitics), but not with strong resumptives (strong pronouns or epithets), as the contrast in (27) from Jordanian Arabic shows:

(27) a. *[ṭalib-[ha]₁ l-kassoul]₂ ma ħakjan   maʕ [wala mʕallmih]₁ gabl-ma tʃuf-uh₂   /*
          student-her the-bad   *Neg* talked.*1pl* with no   teacher   before saw.*3sf-Cl* /
          -uh₂ hu₂ l-mudiirah
          -Cl he the-principal.*3sf*
          'Her bad student, we didn't talk to any teacher before the principal saw him.'

      b. **[ṭalib-[ha]₁ l-kassoul]₂ ma ħakjan   maʕ [wala mʕallmih]₁ gabl-ma hu₂ /*
          student-her the-bad   *Neg* talked.*1pl* with no   teacher   before he /
          ha-l-ġabi₂   yesal
          the-idiot.*3sm* arrive.*3sm*
          'Her bad student, we didn't talk to any teacher before he / this idiot arrived.'

Surprisingly in Jordanian Arabic, when the resumptive clitic is replaced by a strong pronoun or an epithet as in (27b), the functional reading of both the displaced constituent and the resumptive is no longer available. Such contrast is unexpected if we consider VFS account based on interpretation of the resumptive as *e*-type, i.e. as the identity function over functions. Why would such mechanism be blocked when strong resumption is at stake? Strong resumptives, like any anaphoric expression, could in principle be interpreted as identity functions over individuals or functions.

However, such restriction on functional readings can be explained under the GG account just by syntactically constraining ellipsis. Functional readings of resumptives also rely on an *e*-type phenomenon, but more specifically presence of an elided copy as the syntactic restriction of the resumptive. Under such a view, strong resumptives can still have an *e*-type structure, but they will not allow for a functional reading because their complex internal structures will block literal reconstruction. Consider indeed the structures independently suggested by Benmamoun (2000) and Aoun et al. (2001) for strong pronouns and epithets:

(28) a. Strong pronoun: $[_{DP}$ h- $[_{NP}$ ϕ-morpheme $]]$
      b. Epithet: $[_{DP}$ ha- $[_{D'}$ l- $[_{NP}$ gabi$]]$

Contrary to weak anaphoric expressions, strong pronouns and epithets correspond to full DPs, for which the NP restriction is filled. Such assumption suffices to account for absence of syntactic reconstruction of the potentially bound variable *-ha* 'her' in (27b), hence absence of the functional reading of the strong resumptive.

4 Conclusion

In this study, I introduced two novel accounts of functional readings with displacement structures relying on two possible formalizations of syntax-semantics interface, one based on Generative Grammar and Logical Form (GG), the other built on Categorial Grammar and Variable-Free Semantics (CG-VFS). Two arguments suggest that both analyses could be on the right track. One is theoretical: the fact that both accounts of distributive/reconstructed readings with resumption amount to an *e*-type interpretation of the resumptive pronoun. The other is empirical: the fact that both accounts correctly predict functional readings within syntactic islands). Finally, I (re)introduced two generalizations about resumption which seem to favor the GG account based on actual reconstruction, one concerning the type of distributive reading (functional *vs* pair-list), the other linked to a distinction between weak and strong resumption.

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