Pieces of predicate transfer

This paper offers a compositional analysis of predicate transfer, building on Nunberg's (1995) classic discussion. It turns out that the "pieces of meaning" that enter into predicate transfer are all familiar from other constructions, and one piece is a type-shifting operation that does pretty much what a determiner does. Predicate transfer provides especially strong evidence for type shifting, for, unlike other cases where such an operation has been posited (e.g. Chierchia 1998), this operation occurs at a point where it would be impossible to literally attribute the work to a silent determiner. If we are right, then even languages with determiners use the kinds of special interpretation strategies that languages without determiners have been argued to use.

Nunberg argues convincingly that in a sentence like (1a) the VP undergoes a process that alters its denotation from (1b) to one that concerns people. We claim that this process involves two silent elements present in the structure, which start out together as a constituent attached to the VP. First, there is an element that introduces a functional relation, an element to all intents and purposes like the *for* in the Boolos-style example in (2), as analyzed by Rothstein 1995 (or like the parallel silent elements considered in that paper), cf. (3). Second, there is an element that is no different from a relative operator or PRO as analyzed by Heim and Kratzer 1998 -- an element that is not interpreted on its own, but that can move, leaving a variable. Importantly, the process also involves a type shift ι equivalent in effect to a definite determiner. Suppose that in (1a) PRO moves and then the type shift applies to the complex made up of the *for*-element and PRO's trace ((4b),(5)). Then, if the relation the *for*-element introduces is the relation that holds between cars and their owners, we wind up with a predicate that holds of an individual as long as the unique car he owns is parked out back ((5e)).

This analysis departs from Nunberg's description, on which the new meaning has existential or quantificational force: ... if *some / every* car that he owns is parked out back. When it comes to transferred VP predicates, we believe it is empirically correct that meaning transfer introduces definiteness. There are cases where there is apparent existential force, such as (6a), uttered by an artist to convey that he has work of his in the Whitney, but this comes from another source. (6b) can be uttered to convey the same thing, suggesting that *be in the Whitney* itself can existentially quantify over instantiations of its subject (cf. Chierchia's rule of derived kind predication). It is thus natural to imagine (6a) as proceeding along the same lines as (1a), but involving a relation that holds between bodies of work and their creators. The situation is different in the case of NPs, where definiteness is not necessary. Nunberg's (7a), for example, does not suggest that there is a unique item that the individual in question ordered; rather, what we have is a predicate that holds of ham sandwich orderers, which is what we get with a type shift that does what the indefinite determiner does ((7c-e)). An analysis of this kind, where predicate transfer is due in part to a silent constituent, lends itself well to a treatment of anaphora facts discussed in the literature. For example, (8a), due to Ward 2004, comes out as a straightforward case of E-type anaphora where the descriptive part of the pronoun recapitulates earlier syntactically present material (see e.g. Elbourne 2005), cf. (8b-e). (Instances of "sortal crossings" like (9a), involving VPs, can be assimilated to the simpler examples. In this case, one possibility is just that some further movement occurs within the VP, cf. (9b,c).)

It is well known that not all predicates can undergo predicate transfer. Here, there are further differences between transferred NPs and transferred VPs: as pointed out by Ward 2004, in the case of NPs but not VPs, there must be at least one salient individual that the transferred NP is known to characterize. We argue, though, that a certain number of constraints follow from more general factors. Take for example the fact that the predicate in (10a) cannot transform into a predicate that holds of a car key as long as the unique car that it is the key to is parked out back. This is unsurprising given that other items that introduce relations, like the genitive, cannot introduce the relation that holds between a car key and the car that it is the key to ((10b,c)). These additional factors, together with a preference not to effect predicate transfer in cases where the original predicate could semantically compose successfully with its sister, account for the infelicity of a number of cases that have been used to motivate Nunberg's "noteworthiness" constraint; however, they do not entirely remove its motivation.

Chierchia, G. (1998) Reference to kinds across languages. *Natural Language Semantics* 6. Elbourne, P. (2005) *Situations and Individuals*. Cambridge, MA: MIT Press. Nunberg, G. (1995) Transfers of meaning. *Journal of Semantics* 12. Rothstein, S. (1995) Adverbial quantification over events. *Natural Language Semantics* 3. Ward, G. (2004) Equatives and deferred reference. *Language* 80.

(1) a. I <u>am parked out back</u>. (Nunberg 1995) b. λy: y is a vehicle. y is parked out back

(2) For every drop of rain, there is a flower that blooms.
(conveys that there are as many flowers that bloom as there are drops of rain that fall)

(3) Simplified analysis of (2) à la Rothstein 1995
a. [$_\alpha$ every drop of rain [$_\beta$ 1 [$_\gamma$ ... [$_\delta$ [... flower that blooms] [for t_1]]]]
b. [[... flower that blooms]]^g = λx. x is a flower that blooms
c. **[[for]]^g = λy. λx. h(x) = y**
d. Result of b,c: [[δ]]^g = λx. x is a flower that blooms and h(x) = g(1)
e. Assuming that γ contains a silent existential quantifier or that an "existentializing" type shift can occur: [[γ]]^g = 1 iff there is some x s.t. x is a flower that blooms and h(x) = g(1)
f. [[α]]^g = 1 iff for every drop of rain z, there is some x s.t. x is a flower that blooms and h(x) = z

(4) structure of the VP in (1a)
a. before movement of PRO [[FOR PRO][am parked out back]]
b. after movement of PRO [$_\alpha$ PRO [$_\beta$ 1 [$_\gamma$ [$_\delta$ FOR t_1][am parked out back]]]]

(5) interpretation of (4b)
a. [[δ]]^g = λx. h(x) = g(1)
b. ι([[δ]]^g) = the unique x s.t. h(x) = g(1) (undefined if there is none)
c. [[γ]]^g = 1 iff the unique x s.t. h(x) = g(1) is parked out back (undefined if there is none)
d. [[α]]^g = [[β]]^g = λz: there is a unique x s.t. h(x) = z. the unique x s.t. h(x) = z is parked out back
e. Taking h to be a function from cars to their owners:
[[α]]^g = λz: z is the owner of a unique car. the unique car that z owns is parked out back.

(6) a. I <u>am in the Whitney</u>. (Nunberg 1995) b. My work is in the Whitney.

(7) a. The <u>ham sandwich</u> is at Table 7. (Nunberg 1995)
b. [$_\alpha$ PRO [$_\beta$ 1 [$_\gamma$ [$_\delta$ FOR t_1][ham sandwich]]]]
c. ∃([[δ]]^g) = λf$_{<e,t>}$. there is some x s.t. h(x) = g(1) and f(x) = 1
d. [[α]]^g = [[β]]^g = λz. there is some x s.t. h(x) = z and x is a ham sandwich
e. Taking h to be a function from items ordered to their orderers:
[[α]]^g = λz. some item that z ordered is a ham sandwich

(8) a. Every <u>filet mignon</u> I've waited on tonight <u>has said **it** was the best steak they had ever eaten</u>. (Ward 2004)
b. [$_\alpha$ PRO [$_\beta$ 1 [$_\gamma$ [$_\delta$ FOR t_1][filet mignon]]]]
c. [$_\varepsilon$ 1 t_1 has said that **[the γ]** was the best steak they$_1$ had ever eaten]
d. [[ε]]^g = λz. z has said that the unique **x s.t. h(x) = z and x is a filet mignon** was the best steak z had ever eaten
e. Taking h to be a function from items ordered to their orderers (cf. (7)):
[[α]]^g = λz. some item that z ordered is a filet mignon
[[ε]]^g = λz. z has said that the unique filet mignon that z ordered was the best steak z had ever eaten

(9) a. Ringo <u>squeezed himself into a narrow space</u>. (attributed by Nunberg 1995 to Jackendoff)
b. [1 t_1 [2 himself$_1$ <u>[3 t_2 squeezed t_3 into a narrow space]</u>]]
c. λy: ... g(2) squeezed y into a narrow space (analogously to (1))
=> λz: ... g(2) squeezed the unique vehicle that z owns into a narrow space

(10) a. # This key is parked out back. (adapted from Nunberg)
b. my car c. # this key's car