Towards a Non-uniform Analysis of Naturally Reflexive Verbs

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1. Introduction: Naturally reflexive verbs

Cross-linguistically, there are three semantic or conceptual classes of reflexive verbs, which are often distinguished morpho-syntactically (e.g. Kemmer 1993). In Dutch, for example, the choice of the reflexive pronoun (light vs. heavy) distinguishes inherently and naturally reflexive verbs from other reflexive verbs. With inherently reflexive (or inherently reciprocal) verbs, the reflexive pronoun cannot be replaced by a referential DP and only the light reflexive pronoun is allowed (1). With naturally reflexive (or naturally reciprocal) verbs (NRVs), the reflexive pronoun can be replaced by a referential DP and the simple reflexive is still strongly preferred in out-of-the-blue contexts (2/3). NRVs come from a number of semantic subclasses which all represent events that carry "... inherent in their meaning [...] the lack of expectation that the two semantic roles they make reference to will refer to distinct entities ..." (Kemmer 1993:58). So-called 'grooming verbs' such as shave, wash or dress form one main subgroup of NRVs; a further group would be 'verbs of movement'. Naturally reciprocal verbs involve, e.g., verbs of social (meet) or affectionate (kiss) but also verbs of antagonistic events (fight). With naturally disjoint verbs finally, a referential DP can replace the reflexive pronoun but the complex reflexive is strongly preferred (4). These verbs express events, which carry the expectation that the two semantic roles they make reference to will refer to distinct entities (e.g. hate, accuse, kill, ...).

- (1) Jan schaamt zich/*zichzelf/*Marie John shames REFL/REFL.SELF/Mary 'John is ashamed'
- (3) Jan scheerde zich/??zichzelf/Peter John shaved REFL/REFL.SELF/Peter 'John shaved (Peter)'
- (2) Jan waste zich/??zichzelf/Marie John washed REFL/ REFL.SELF/Mary 'John washed (Mary)'
- (4) Zij haat ??zich/zichzelf/Peter She hates REFL/REFL.SELF/Peter 'John hates himself/Peter'

In this paper, we concentrate on the second class, i.e. naturally reflexive verbs (NRVs). NRVs are of particular interest as they make reference to two thematic roles but often have the flavor of an intransitive syntax because no overt reflexive form is present as in English 'John washed' or because, in addition, de-transitivizing morphology appears as in Greek (5). Other languages use a reflexive pronoun to mark NRVs; as shown in (2/3), Dutch uses the light SE-reflexive pronoun *zich* and German (6) expresses all types of reflexive verbs with the SE-reflexive pronoun *sich*.

(5) O Janis pli-thik-e The John washed.Nact.3sg 'John washed' (6) Hans wäscht sich/Maria John washes REFL/Maria 'John washes himself/Mary'

As the set of naturally reflexive verbs is quite stable across languages (but see below), uniform

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analyses have been proposed and we will revisit three of them in Section 2. By examining the properties of NRVs in German (Section 3), Greek (Section 4) and English (Section 5), we provide further support for a non-uniform analysis of NRVs across languages (see e.g. Lekakou 2005, Takehisa 2003; cf. Reinhart & Siloni 2004). We argue that the (low) semantic transitivity of NRVs is realized across languages at different linguistic levels and by different syntactic means (in overt syntax in German, in covert syntax in Greek, at the conceptual level in English).

2. Three uniform views on NRVs

It has been proposed that NRVs are always transitive, i.e. even if they look like intransitives they select a specific reflexive null object (7a), which is overt in languages like German (see e.g., Bergeton & Pancheva 2012). Support for this comes from the observation that these predicates do have a transitive construal as in (7b, c). To the extent that they are transitive, we will show that these verbs behave similarly to so-called *non-core transitive verbs*, a situation which strongly weakens the argument.

(7) a. John washed \emptyset_{REFL} b. John washed Mary c. John didn't wash Mary but himself

A second view assumes NRVs to be unaccusatives with the theme argument being a derived subject leaving a trace/copy in object position (Marantz 1984, Grimshaw 1990, McGinnis 1998, Embick 2004, Pesetsky 1995). Support for this analysis comes from languages such as Greek that mark their NRVs with the same non-active morphology as their passives or uncontroversial unaccusatives. That is, the NRV in (5) appears with the same Nact-suffix 'ike' as the anticausative in (8b).

(8) a. O Janis ekapse ti supa b the John burnt. Act the soup 'John burned the soup'

b. I supa kaike *me ti dinati fotia/*apo to Jani* the soup burnt.Nact with the strong fire/from the John 'The soup burned from the strong fire'

A third proposal argues that NRVs are unergatives (e.g. Reinhart & Siloni 2004). Support for this analysis comes from the observation that in languages such as English, NRVs pattern with unergative predicates with respect to a number of tests (e.g., *er*-nominalizations; see below).

2.1. (Non-)core transitive verbs

In (7) we saw that English NRVs have transitive as well as intransitive uses. (9) and (10) show that NRVs are not the only verb class that shows flexibility in transitivity.

(9) Mary ate a pizza

(10) Mary ate

With respect to (10), there is a certain amount of consensus that the understood object (food) is not projected in the syntax (Mittwoch 2005 for discussion and references). Levin (1999) and Rappaport Hovav and Levin (1998, 2008) call transitive verbs which can leave their internal argument syntactically unexpressed *non-core transitive verbs* and those that do not allow the omission of the internal argument *core transitive verbs*. Further examples of the two verb classes are given below.

(11) a. Leslie swept/scrubbed (the floor) this morning

(non-core transitives)

b. John ate and ate and ate

(12) a. Kelly broke *(the plate) tonight

(core transitives)

b. *John destroyed and destroyed and destroyed

These authors further show that the two classes differ in their event complexity (13 vs. 14). Non-core transitives are mono-eventive while core transitive verbs are bi-eventive (resultative). They derive then

¹ In these languages, NRVs are actually ambiguous between a reflexive and a passive reading (Tsimpli 1989). The fact that (8b) does not allow agentive by-phrases shows that it is not a passive but an anticausative (AAS 2006).

the (im-)possibility of object drop from the condition in (15): while the object is an argument of the root/constant in (13) (i.e., it is a constant participant), it is an argument of the result state in (14) (i.e., it is a structure participant).

- (13) a. Leslie swept the floor
- b. [x ACT < sweep > y]
- (14) a. John broke the vase
- b. [[x ACT] CAUSE [y BECOME
broken>]]
- (15) Argument Realization Principle: There must be one argument XP in the syntax to identify each sub-event in the event structure template. (Rappaport Hovav and Levin 2001: 779)

In this system, the internal argument of mono-eventive predicates is an argument of the root, not of the event template. The event template identifies only the subject argument. Arguments of roots, while semantically present, do not have to be projected to the syntax. We will suggest that NRVs in English are instances of non-core transitive verbs. This predicts that all NRVs should be mono-eventive, which seems to be empirically correct. However, intransitive NRVs in Greek can be bi-eventive. This, we argue, suggests that Greek NRVs project their single overt DP as an internal argument.

3. German

German NRVs, like all German reflexive verbs, are ordinary transitive constructions with a subjectbound anaphor in object position. Below, we list some of the evidence from the literature.

The reflexive element sich behaves like a full object pronoun, not like a verbal affix or a clitic (This holds for all kinds of reflexive constructions.) Specifically, sich shows the word order variability of an ordinary object pronoun (Sells et all. 1987, Fagan 1992, Steinbach 2002).

- dass sich die jungen Menschen darüber beklagt that REFL the young people about-it complained have
 - b. dass die jungen Menschen sich darüber beklagt haben
 - c. ?dass die jungen Menschen darüber sich beklagt haben
 - "... that the young people complained about it"

Furthermore, sich is marked for object case. This can be seen with first and second person antecedents and in case-copying constructions (e.g. Fanselow 1991).

- (17) a. Ich wasche mich I wash me.ACC

 - d. Ich helfe mir I help me.DAT
- b. Du wäschst dich you wash you.ACC
- e. Du hilfst dir you help you.DAT
- c. Er wäscht sich he washes REFL
- f. Er hilft sich he helps REFL
- als einen Superhelden zeichnet (18) a. weil Hans sich as John.NOM REFL.ACC as a.ACC superhero paints 'because John paints (a picture of) himself as a superhero'
 - b. weil Hans sich als einen Idioten ansieht as John.NOM REFL.ACC as an.ACC idiot 'because John regards himself as an idiot'

In ordinary reflexive and naturally reflexive constructions, sich carries an independent theta-role, i.e. it is also semantically an argument (Schäfer 2012). The data below argue against any kind of intransitivity account because both, an agent-role and a theme-role can be focused independently.

- (19) Morgens wäscht sie sich immer/erst mal selber at.morning washes she REFL always/first-of-all self
 - (i) agent focus: She washes herself, no-one else washes her. (context: She is a disabled patient.)
 - (ii) theme focus: She washes herself, she washes no-one else. (context: She is a nurse.)

We conclude that German NRVs are syntactically and semantically transitive. They have the structure in (20) and involve ordinary anaphoric binding in the syntax (Principle A). As an internal argument is projected in the syntax (the anaphor), core transitive verbs can enter this construal as in (21).

(20) [$_{VoiceP}$ Hans $_{i}$ [$_{vP}$ sich $_{i}$ wäscht]] John REFL washes (21) Hans zerstörte sich mit Alkohol John destroyed REFL with alcohol 'John destroyed himself with alcohol'

4. Greek

Greek NRVs (22b) are considered by several authors to function like unaccusatives (Marantz 1984, Embick 1998 and others), as they share the same non-active (Nact) morphology with intransitive variants of verbs entering the causative alternation, which are uncontroversially unaccusatives, see (8b).

(22) a. O Janis eplin-e ti Maria the John washed.Act.3sg the Mary 'John washed Mary' b. I Maria pli-thik-e me prosohi the Mary washed.Nact.3sg with care 'Mary washed carefully'

However, NRVs differ from anticausatives in that they have an agentive interpretation, and thus can be modified by agent-oriented adverbials (22b). In fact, several scholars took NRVs to be unergative predicates in Greek (e.g. Papangeli 2004, Tsimpli 1989). Tsimpli (1989) discusses a diagnostic that suggests that the DP argument of NRVs is not a derived subject. A derived subject in Greek cannot control into rationale clauses, as shown in the passive example in (23). In contrast, subjects of naturally reflexive predicates can (24). This suggested to Tsimpli that the subject in (24) cannot be analyzed as 'deep' object, and hence NRVs are unergative predicates.

- (23) *O Janis dolofonith-ik-e ja na gini iroas the John murdered.NAct.3sg for subj become hero 'John_i was murdered PRO_i to become a hero'
- (24) I Maria htenist-ik-e ja na vgi ekso the Mary combed.NAct.3sg for subj go out 'Mary_i combed PRO_i to go out'

Although Greek lacks most of the standard tests for unaccusativity (see Markantonatou 1992, Alexiadou & Anagnostopoulou 1999), the following tests suggest that NRVs are not unergatives. Markantonatou (1992) pointed out that in Greek unaccusative but not unergative predicates can form adjectival participles. Applying this diagnostic, we see that NRVs pattern unlike unergatives:

(25) a. pesmeno filo b. *tregmenos anthropos fallen leaf run man

(26) a. plimeno pedi b. ksirismenos anthropos washed child shaved man

However, these results have to be taken with care as they only show that NRVs behave unlike unergatives, not that they are necessarily unaccusative. (26a, b) could as well be derived from the transitive version of these verbs.

As in English, unergative predicates can build er-nominals in Greek, while unaccusatives cannot. The corresponding affix is -tis (27a-d). Applying this test to NRVs, we see that they pattern unlike unergative predicates. However, this test has again to be taken with care as even the transitive, disjoint uses of NRVs do not form the nominalization, for reasons that are unclear to us. That is 'shaver of someone' is out in Greek, while 'teacher of physics' is fine.

(27) a. tragudis-tis b. horef-tis c. *pes-tis d. *erho-tis singer dancer faller arriver

(28) a. *ksiris-tis b. *ndi-tis c. *htenis-tis shaver dresser comber

A further unaccusativity test proposed for Greek is possessor sub-extraction, which is suggested to be possible from the post-verbal subject of an unaccusative verb, as well as from the object of a transitive but not from the subject of an unergative (cf. Alexiadou & Anagnostopoulou 1999, but not all native speakers agree with the judgments). Here again natural reflexive verbs pattern unlike unergatives:

- (29) a. tinos irthe to aftokinito? whose came.3sg the car 'Whose car came?'
- b. tinos diavases to vivlio? whose read.2sg the book 'Whose book did you read?'
- (30) a. *tinos kudunise to kuduni? whose rang.3sg the bell 'Whose bell rang?'
- b. tinos plithikan ta pedia? whose washed.Nact.3pl the children 'Whose children washed?'

Finally, the *ellipsis test* suggests intransitivity: (31a) with an overt object anaphor is ambiguous, the NRV with Nact-morphology in (31b) has only a sloppy reading and no object comparison reading. Sells, Zaenen & Zec (1987) claim that this is so because a process of de-transitivization has taken place.

- (31) a. O Janis pleni ton eafto tu perisotero apo to Vasili the John washes him self more than the Vasili 'John washes himself more than Vasilis'
 - 1. Subject comparison, strict or sloppy
 John washes himself more than Vasili washes John/himself
 - 2. Object comparison: Shows that washes himself is transitive John washes himself more than he washes Vasili
 - b. O Janis plenete perisotero apo to Vasili the John washes-Nact more than the Vasilis
 - 1. Sloppy interpretation: John washes himself more than Vasilis washes himself
 - 2. no object comparison

We conclude that Greek NRVs are syntactically intransitive (in contrast to e.g. German). Furthermore, semantically, they clearly involve an agent. However, the question whether their single argument is an internal or an external one has not found a positive answer, as the unaccusativity diagnostics discussed are problematic. However, the fact that Greek NRVs involve core transitive verbs (often with a psychological reading; Papangeli 2004, Alexiadou & Doron 2012) strongly suggests that the sole DP of NRVs is merged in the internal argument position.

- (32) a. Klidono-me s-to banjo lock.1.Nact.SG in-the bathroom 'I lock myself in the bathroom'
 - ??Klidone ke klidone ke klidone locked.he and locked.he and locked.he
- (33) a. Klino-me otan ime anhomenos close.1.Nact.SG when am.1.SG stressed 'I keep myself alone when I am stressed'
 - b. ??Ekline ke ekline ke ekline closed.he and closed.he and closed.he

4.1 Afto-prefixation, Nact and naturally disjoint verbs

In Greek, all NRVs bear non-active morphology. Naturally disjoint predicates can form a transitive reflexive variant with the complex reflexive DP ton eafto tu, (34a) (Iatridou 1988, Anagnostopoulou & Everaert 1999, Spathas 2010). However, with certain naturally disjoint predicates a reflexive interpretation can be derived via non-active morphology in combination with the intensifier afto- 'self' (34b) (Tsimpli 1989, Rivero 1992, Embick 1998); in this case, the complex form cannot co-occur. Note that it is the combination of the element afto and the non-active morphology, which gives the reflexive interpretation; without afto the result is a passive (34c), and without the non-active morphology the afto-prefixed form is ungrammatical. Naturally reflexive verbs disallow afto-prefixation, although these

verbs can in principle appear in a transitive construal (35b). (35b) is ambiguous between a passive and a reflexive interpretation, Embick (1998):

(34) a. O Janis katigori-se ton eafto tu/to Petro (transitive)
The John accused.Act.3sg the self his/the Peter

'John accused himself/Peter'

b. O Janis afto-katigori-thik-e (*ton eafto tu) (reflexive) the John self-accuse.Nact.3sg (the self his)

'John accused himself'

c. O Janis katigori-thik-e (passive) the John accuse.Nact.3sg

'John was accused'

(35) a. O Janis pleni ti Maria The John washes the Mary 'John washes Mary' b. O Janis plithike/*afto-plithike
The John washed.NAct.3sg/self-washed.NAct.3sg
'John washed' or 'John was washed'

These data suggest that Nact-morphology alone cannot bring about a reflexive interpretation (Embick 2004). The reflexive interpretation of naturally disjoint verbs arises from the combination of the Nact-morphology and *afto*. The reflexive interpretation of NRVs arises from the combination of Nact-morphology and the lexical semantics (i.e. conceptual expectation) of these verbs (cf. section 1).

4.2. Restrictions on afto-prefixation (Alexiadou to appear):²

The formation of a reflexive interpretation via Nact-morphology and *afto*-prefixation is clearly restricted. First, *afto*- is not allowed with semantically monadic predicates, neither unergatives (36a), nor unaccusative (36b), even if they bear non-active morphology.

(36) a. *afto-gelieme self-laugh

c. *afto-erhome d

b. *afto-perpatieme self-walk

d. *afto-petheno self-die

Second, *afto*- is out with transitive verbs that cannot receive a passive interpretation. Several subcases can be identified. (i) For some causative verbs, the Nact-morphology is restricted to anticausative formation (37, Alexiadou & Anagnostopoulou 2004). (ii) For some other verbs, a passive form cannot be built due to a gap in the morphological paradigm (e.g. *break* in (38), Alexiadou & Anagnostopoulou 2004). (iii) *Afto*- is out with deponent verbs (39), i.e. verbs with non-active morphology (Embick 1998), which, however, cannot passivize, suggesting that it is passive and not Nact-morphology that matters:

- (37) a. O Janis ekapse to spiti the John burnt the house 'John burnt the house'
- b. To spiti kaike (*apo ton Jani)
 The house burnt. Nact by the John
 'The house burnt'
- c. *afto-kaika self-burn.Nact

- (38) a. *to vazo spastike apo to Jani the vase break.Nact.3sg by the John 'The vase was broken by John'
- b. *afto-spastika self-break.Nact-1sg

(39) a. *afto-metahirizome b. metahirizome self-use.Nact use-Nact-1sg

We conclude that *afto*-prefixation is possible only if the verb can have a passive interpretation.

² Further restrictions on *afto*-prefixation concern the aspectual class of the verb (only accomplishments, not achievements or activities) and the case of the associate DP (only nominative) (Alexiadou to appear, Spathas & Alexiadou, in progress).

In agreement with Embick, Greek NRVs have an unaccusative syntax (in the spirit of Alexiadou, Anagnostopoulou & Schäfer (AAS) 2006) in that the sole overt DP is merged as an internal argument. However, more needs to be said as NRVs undoubtedly involve agentivity. We assume that external arguments are severed from the verbal predicate and are introduced by a functional projection (*Voice* in Kratzer 1996, Marantz 1997, AAS 2006) on top of the lexical verbal phrase (vP/VP). Greek Nactmorphology signals the absence of Spec,Voice (Embick 1998, AAS 2006). However, an implicit external argument can be present. Across languages we find two non-active Voice heads introducing an existentially bound implicit external argument, *passive Voice* and *middle Voice*. The Greek Nact-Voice head is actually middle Voice (Doron 2003, Alexiadou & Doron 2012). Greek, unlike Hebrew and English/German, does not have a dedicated passive Voice head. Unlike passive Voice (40a), middle Voice (40b) does not trigger a Principle C/Disjoint Reference Effect.

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(40) a. Passive Voice + vP:

∃x (agent, x) .... (theme, y) & (x ≠ y) (e.g. English, German)

b. Middle Voice + vP:

∃x (agent, x) .... (theme, y) (Greek, Hebrew)
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The interpretation of middle Voice depends on its lexical context. With naturally reflexive predicates, it will supply a reflexive interpretation. With naturally disjoint predicates, a passive interpretation will emerge. These default interpretations are driven by conceptual expectations about the events associated with the verbal root (cf. Section 1). However, in the presence of overt lexical material that specifies the interpretation of the implicit argument, the default interpretation can be overridden (Alexiadou & Doron 2012): If an agentive *by*-phrase is added to a naturally reflexive verb, the reflexive default interpretation is shifted to a passive interpretation (41b). If *afto* is added to a naturally disjoint verb, the default passive interpretation is shifted to a reflexive one (42b).

- (41) a. O Janis pli-thik-e The John washed.Nact.3sg 'John washed'
- b. O Janis pli-thik-e apo ti Mari The John washed.Nact.3sg by the Maria 'John was washed by Mary'
- (42) a. O Janis eksoris-tik-e (apo ti Maria) The John exiled.Nact-3sg by the Mary 'John was exiled (by Mary)'
- b. O Janis afto-eksoris-tik-e The John self-exiled.Nact-3sg 'John got self-exiled'

We argue that *afto* is an intensifier that attaches to Voice (43; cf. Hole (2006) for the German intensifier *selbst*). It selects a Voice structure that lacks an overt external argument, hence Nact-morphology. Unlike adverbial intensifiers, the associate of *afto*- is the internal (nominative) argument (Spathas & Alexiadou, in progress). *Afto* contributes the information in (44) that its associate DP is the only agent in every sub-event e, the event predicated over; thereby, *afto* brings about that the theme argument is necessarily identical with the implicit argument of the middle Voice. Note that this allows us to assume that control data as in (24) involve, technically, control by the implicit agent of the middle Voice, exactly as in structures with passive interpretation.

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(43) [v_{oiceP} \ afto_i \ [v_{oiceP} \ [v_{oiceP} \ Voice_{MIDDLE} + AG_i \ [v_P \ DP-object_i \ [v' \ v \ \ \sqrt{EXILE} \ ]]]]]
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(44)O Janis afto-eskorikis-tik-e

The John self-exiled.Nact.3sg

= "There was an event e of someone exiling John and John was the agent of every sub-event of e."

5. English

English NRVs have, in addition to their reflexive reading, also a disjoint reading (45). This second, disjoint reading is exactly of the type that non-core transitives like 'eat' receive under object-drop.

- (45) John washed/shaved.
 - i) John washed/shaved himself
 - ii) alternatively: John washed something (e.g. the dishes) /John shaved somebody

In the literature, evidence has been provided that NRVs behave syntactically as unergatives. (Reinhart & Siloni 2004). For example, like unergatives (46a), but unlike unaccusatives (46b), NRVs can appear in the X-way-construction (see Goldberg 1997, Marantz 1992). Note that (46c) still has the reflexive and the disjoint interpretation of (45i, ii).

- (46) a. John danced his way out of the room.
 - b. *The butter melted its way off the turkey.
 - c. John washed/shaved his way into a better job. (Takehisa 2003)

Resultative secondary predicates can only be predicated of internal arguments; in the absence of such an internal argument a (fake) reflexive has to be inserted (47). Again, NRVs show unergative behavior (again under both their interpretations) (48). Furthermore, NRVs can build *er*-nominalization, which is impossible with unaccusatives (49).

- (47) a. The ice froze (*itself) solid. (48) a. John washed/shaved *(himself) clean
 - b. John laughed *(himself) sick. b. John washed *(something) clean
- (49) a She runs so fast because she is an experienced runner.
 - b *She moves so gracefully because she is an experienced mover.
 - c She dresses slowly because she is an elegant dresser.

We applied other transitivity tests (see Kratzer 2005) such as reduplication to get an iterative reading, and *out*-prefixation. These tests distinguish between core (*break*) and non-core (*eat*) transitive verbs in the sense of Levin (1999) (50, 51). Again, NRVs behave (in both their readings) as non-core transitive (52). If NRVs have an unergative syntax because they are non-core transitive verbs that are allowed to drop their internal argument, then all English NRVs should be mono-eventive, not bi-eventive in the sense of Rappaport Hovav and Levin (2001). This seems to be empirically correct.

- (50) a. John ran and ran and ran/John ate and ate and ate (non-core transitives)
 - b. John out-ran/out-ate Mary.
- (51) a. *John broke and broke and broke (*core transitives*)
 - b. *John out-broke Mary.
- (52) a. John washed and washed and washed.
 - b. John out-washed his sister.
 - b'. *John out-washed his clothes his sister (Sells et al. 1987)
 - b". *John out-washed himself his sister

Finally, (53) with an object reflexive pronoun is three-way ambiguous and has an object comparison reading while (54), the corresponding NRV, has only the sloppy reading. Importantly, it lacks the object comparison reading, which requires a transitive antecedent (Dimitriadis & Que 2009).

- (53) John washes himself better than George
 - a. John washes himself more than George washes himself (sloppy)
 - b. John washes himself more than George washes John (*strict*)
 - c. John washes himself more than he washes George (object comparison)
- (59) *John washes more than George.*
 - a. Subject comparison (sloppy):
 - John washes himself more than George washes himself.
 - a'. John washes more stuff than George washes stuff

b. Object comparison: Impossible, showing that *wash* is intransitive. *John washes himself more than he washes George.

We conclude that English NRVs are syntactically unergative and, thereby, similar to other non-core transitive predicates like *eat*. Their internal argument is present only at a semantic/conceptual level and it is interpreted by conceptual/encyclopedic knowledge. Specifically, these verbs are interpreted as two-place predicates at the syntax-conceptual level interface, an option that is available under the assumption that thematic roles belong to the conceptual level (Chomsky 1995). This means that the internal argument is added post-syntactically on the basis of information associated with the lexical root. With verbs of consumption, the added argument is the most prototypical object for this predicate-class, an amount of food/fluid that one can consume. That is *John ate* is interpreted as John ate things that, by world-knowledge, are typically eaten, i.e., John ate food. Similarly, for *John washed* it is computed at the conceptual interface that John washed things, which, by world-knowledge, are typically washed. Two options are in principle available: in a body-care setting, John washed himself. Alternatively, in a house cleaning setting, he washed prototypical household objects, i.e. John washed the dishes. In both cases, it is rather unexpected that John washed Mary.

6. Three modes of NRV formation cross-linguistically

We argued that there are three modes of NRV formation across languages. NRVs are transitive in German and involve syntactic encoding of reflexivity via an object anaphor. NRVs are unaccusative in Greek but involve an implicit external argument, which can be interpreted as coreferential with the internal argument (Middle Voice is a syntactic means to derive a reflexive interpretation). NRVs are syntactically unergative in English and involve an internal argument only at the conceptual level which can be interpreted as coreferential with the external argument. The question that arises is how languages select their specific mode of NRV-formation. We believe that this selection is guided by Blocking and Economy taking into consideration the lexical inventory of individual languages and the preference for syntactic encoding (Reuland 2011). In German, we find a syntactic encoding of NRVs via an Agree chain between the subject and an overt reflexive object pronoun (syntactic binding/Principle A, e.g. Reuland 2011, Schäfer 2012). Only the disjoint interpretation can be resolved at the conceptual interface, as described above for English. This suggests that the option of syntactic encoding of reflexivity via a SE-anaphor blocks conceptual knowledge from taking over. English lacks SE-reflexives. Syntactic encoding works only in focus environments (e.g. John washed HIMSELF, not someone else). Thus English chooses an alternative implementation: Unergative syntax + conceptual knowledge. Greek, as English, lacks a SE-reflexive. The heavy reflexive form ton eafto tu 'the self his' is compatible only with naturally disjoint predicates as it strongly focuses the binding relation with respect to alternatives (Spathas 2010, Anagnostopoulou & Everaert 1999). However, Greek has 'middle Voice' as an a alternative syntactic way to implement that one entity carries two thematic roles. Middle Voice blocks coreference at the conceptual level, which explains why Greek as German lacks a reflexive reading for the active string 'John washed'.

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