

# 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, ...*).

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|---|--|
| (1) Jan schaamt zich/*zichzelf/*Marie<br>John shames REFL/REFL.SELF/Mary<br>'John is ashamed'       | (2) Jan waste zich/??zichzelf/Marie<br>John washed REFL/ REFL.SELF/Mary<br>'John washed (Mary)'    |
| (3) Jan scheerde zich/??zichzelf/Peter<br>John shaved REFL/REFL.SELF/Peter<br>'John shaved (Peter)' | (4) Zij haat ??zich/zichzelf/Peter<br>She hates REFL/REFL.SELF/Peter<br>'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<br>The John washed.Nact.3sg<br>'John washed' | (6) Hans wäscht sich/Maria<br>John washes REFL/Maria<br>'John washes himself/Mary' |
|---|--|

As the set of naturally reflexive verbs is quite stable across languages (but see below), uniform analyses have been proposed and we will revisit three of them in Section 2. By examining the

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- (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?    b. tinos diavases to vivlio?  
 whose came.3sg the car            whose read.2sg the book  
 ‘Whose car came?’                    ‘Whose book did you read?’
- (30) a. \*tinos kudunise to kuduni?    b. tinos plithikan ta pedia?  
 whose rang.3sg the bell            whose washed.Nact.3pl the children  
 ‘Whose bell rang?’                    ‘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            (33) a. Klino-me otan ime anhomenos  
 lock.1.Nact.SG in-the bathroom            close.1.Nact.SG when am.1.SG stressed  
 ‘I lock myself in the bathroom’            ‘I keep myself alone when I am stressed’
- b. ??Klidone ke klidone ke klidone    b. ??Eklone ke eklone ke eklone  
 locked.he and locked.he and locked.he            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 b. O Janis plithike/\*afto-plithike  
 The John washes the Mary The John washed.NAct.3sg/self-washed.NAct.3sg  
 ‘John washes Mary’ ‘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*)<sup>2</sup>

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 b. \*afto-perpatieme  
 self-laugh self-walk  
 c. \*afto-erhome d. \*afto-petheno  
 self-come 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 b. To spiti kaike (\*apo ton Jani) c. \*afto-kaika  
 the John burnt the house The house burnt.Nact by the John self-burn.Nact  
 ‘John burnt the house’ ‘The house burnt’
- (38) a. \*to vaz0 spastike apo to Jani b. \*afto-spastika  
 the vase break.Nact.3sg by the John self-break.Nact-1sg  
 ‘The vase was broken by John’
- (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.

<sup>2</sup> 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).

### 4.3. Analysis

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 Nact-morphology 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.

- (40) a. Passive Voice + vP:  
 $\exists x$  (agent, x) .... (theme, y) & (x  $\neq$  y) (e.g. English, German)  
 b. Middle Voice + vP:  
 $\exists x$  (agent, x) .... (theme, y) (Greek, Hebrew)

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-eksois-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.

- (43) [<sub>VoiceP</sub> *afto*<sub>i</sub> [<sub>VoiceP</sub> [<sub>Voice'</sub> Voice<sub>MIDDLE</sub>+AG<sub>i</sub> [<sub>vP</sub> DP-object<sub>i</sub> [<sub>v'</sub> v  $\sqrt{\text{EXILE}}$  ]]]]]

- (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 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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