MENTAL EXPERIENCE VERBS IN MODERN GREEK: A COGNITIVE EXPLANATION FOR ACTIVE VERSUS MIDDLE VOICE[1]

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0. Introduction

Middle voice is often characterized as indicating that the subject or its interests are affected in some way (Lyons, 1968; Barber, 1975; Gonda, 1975; Klaiman, 1988). Descriptive grammars of Modern Greek, while presenting a slightly more complex picture, nonetheless identify affectedness of subject as a primary meaning encoded by middle voice (Mackridge, 1987; Tzartzanos, 1989). In Modern Greek, mental experience verbs occur with an affected human experiencer subject. Because mental experience verbs in Greek can occur in both active and middle voice, some notion in addition to subject affectedness is necessary in order to account for middle voice in this semantic class.

The present paper explains these phenomena in terms of specific components of prototypical transitivity. The proposed analysis draws on current cognitive theories (Langacker, 1987a; to appear) which elaborate aspects of Hopper and Thompson's (1980) model of event structure and transitivity. I assume that transitivity is a gradient property of clauses, in which the prototypical transitive event involves a transfer of energy from a source (initial endpoint) to an inactive patient-goal (terminal endpoint). It is shown that mental experience events are encoded by middle as opposed to active voice verbs if the conceptualized event instantiates a schema with either a defocused initial or terminal endpoint.

1. Voice Marking in Modern Greek

All Greek verbs, in both finite and non-finite form, are obligatorily marked for active or middle voice. Voice is indicated by verbal suffixes which also encode tense, aspect, and modality. With respect to voice marking, Greek verbs can be grouped into three main classes. The first consists of verbs which occur only in active voice, and in fact have no corresponding middle forms. There is also a very large set of Greek verbs which have both active and middle forms. Some of these verb pairs will be treated in later sections, so I will simply say here that middle morphology encodes a variety of related meanings which can be motivated in particular contexts. Finally, a large number of Greek verbs, approximately one third, occur only in middle voice and in fact have no corresponding active forms (Dr. Roderick Beaton, Modern Greek Department, Kings College, University of London, p.c.). These verbs have traditionally been termed "deponent."[2]

With respect to their arguments, middle voice verbs, both deponents and those with active counterparts, can occur in morphosyntactically transitive as well as intransitive clauses. In the present work, a clause is morphosyntactically transitive only if it contains a nominative case marked subject and an accusative or sentential object. Morphosyntactically intransitive clauses include those with oblique objects (a preposition + an accusative or genitive case object), genitive objects, or no objects. Middle voice verbs can occur with accusative, sentential, genitive, and oblique

objects, as well as with no object, and therefore cut across transitivity which is defined strictly on the basis of morphosyntax.

2. Theoretical Overview

Numerous studies have shown that transitivity is a gradient property of clauses, comprised of a set of related meaning components such as agency, telicity, and object affectedness. (Lakoff, 1977; Hopper and Thompson, 1980; Langacker, to appear). Thus, a prototypical transitive event involves, among other things, a complete transfer between two distinct participants, one of which is an agent and thus willfully initiates the transfer, the other of which is a patient and thus is affected by the agent's action. Hopper (1985) further notes the correlation between object affectedness, referentiality, and transitivity. An affected object is one which is pre-existing at the time of the event designated by a verb and thus capable of being impacted, as opposed to an effected object, which is created during the process designated by a verb. It is claimed that affectedness of an independently existing object may be the most important parameter in determining transitivity. Likewise, non-distinctness of participants is an important parameter in determining departures from canonical transitivity (Langacker and Munro, 1975; Kemmer, 1988).

Cognitive grammar maintains that degree of transitivity is related to construal (Langacker, 1987b; to appear), since the same objective event can be conceptualized in a number of different ways, giving rise to different linguistic constructions associated with the same event. The types of participants selected for linguistic coding therefore reflect the more abstract conceptual organization of the clause.

The present analysis relies on the notion of transitivity as a basic conceptual phenomenon which manifests itself in clause structure to varying degrees. In particular, it is shown that middle versus active voice mental experience events in Modern Greek are consistently distinguished according to less versus greater transitivity, respectively.

3. Active versus Middle Voice Marking on Verbs of Mental Experience[3]

3.1 Overview

In what follows, I explain voice marking on verbs of mental experience in terms of prototypical event structures. I maintain that mental experience events are of two types. The first, Initiative Mental Experience, designates an active experiencer who directs attention to a mental object, and as such, instantiates an extension from the prototypical transitive event discussed above. Morphosyntactically, mental events of this type are typically transitive, i.e. occur with a nominative subject and an accusative or sentential object. Middle voice Initiative Mental Experience is semantically differentiated from the active in that the middle designates an event with an internal, less distinct object (defocused terminal endpoint), as opposed to the active, which designates an external object that exists apart from the experiencer's mental contact with it (focused terminal endpoint). Thus, while the active verbs portray a mental transfer between two distinct participants, the middle verbs, on the other hand, designate an event initiated by an active participant who makes mental contact with a non-distinct second participant.

The second type of mental event, Less Initiative Mental Experience, designates a less active experiencer who is affected by a participant or an event. In the majority of cases, middle versus active voice events differ in that the former focuses on an experiencer's resulting mental state, whereas the latter highlights the cause of a mental state. The middle marked event is typically (but not always) morphosyntactically intransitive: it occurs with a nominative subject which designates an affected entity, and an oblique object or an adverbial clause which identifies the source of the affect. The oblique object in this class of events is therefore not a canonical patient-object, since it is construed as an affecting, rather than an affected entity.

3.2 Initiative Mental Experience: Directed Mental Activity

In this section I will discuss verbs of perception and verbs analogous to perception, both of which are predominantly active voice, and verbs of thinking, which are predominantly middle voice. I claim that both classes of verbs represent extensions from the prototypical transitive event; the middle verbs, however, are farther removed from the transitive prototype. The relevant distinction is that of internal versus external objects, where internal objects correspond to less transitive events, and external objects correspond to events with a higher degree of transitivity.

3.2.1 Active Voice: Verbs of Perception

In Modern Greek, verbs of perception, unlike verbs of cognition or verbs of thinking, are almost all exclusively active voice verbs. The verbs which denote the five senses, for example, are active constructions. Consider the following.

1. vlépis to peDí ekí péra
   2sg=see=ACT ACC child there around
   'Do you see the child over there?'

2. akúo tin musikí tis yitónisas mu
   1sg=hear=ACT ACC music GEN neighbor GEN
   'I can hear my neighbor's music.'

3. áNize to prósopo tu
   3sg=touch=ACT ACC face GEN
   'S/he touched his face.'

4. mirízo móno skórDa edó péra
   3sg=smell=ACT only garlic here around
   'I can smell nothing but garlic around here.'

5. Den borí na kataláve tin yévsi tu faitó
   NEG 3sg=able SUBJ 3sg=understand=SUBJ=ACT ACC taste GEN food
   'He can't taste his food.'

Other verbs which designate more active perceptual activity, i.e., *kitázo* 'to look at,' *paratiró* 'to notice, to observe,' *Diakríno* 'to distinguish,' are also active voice with no corresponding middle forms. Since most other sub-classes of mental experience

verbs to be considered are widely comprised of middle voice verbs, this pattern requires further comment.

In the model of event structure presented above, events are more highly transitive to the extent to which they designate an energy transfer from an energy source to an energy sink. The object in a prototypical transitive construction is totally distinct from the subject, and lies downstream from the flow of energy. It has been pointed out (Langacker, to appear) that verbs which designate a perception event are analogous to prototypical transitive events in which energy expenditure occurs, in that perception is conceived as involving directed activity on the part of the perceiver toward the object of perception. Although the domain is no longer that of physical energy, the focus of attention on an object at the end of a perceptual path is seen as analogous to an energy transfer which affects an energy sink, and thus approximates the transitive prototype. The active voice marking on verbs of perception in Modern Greek therefore finds a natural explanation in terms of prototypical event structure.

The next two active voice mental verbs to be discussed are those which designate the quintessential emotions, *aGapó* 'to love,' and *misó* 'to hate.' I am claiming that unlike most verbs of emotion to be discussed below, *aGapó* and *misó* construe processes in which an active entity directs attention to an external object and therefore represent extensions from the transitive prototype of event structure. They are exemplified in 6.-7. and 8.-9., respectively.

6. aGapái polí tin yinéka tu
   3sg=love=ACT a lot ACC wife GEN
   'He loves his wife very much.'

7. to aGóri aGapái polí tin píisi tu elíti
   NOM boy 3sg=love=ACT a lot ACC poetry GEN Elitis
   'The young man loves Elytis' poetry.'

8. o xrístos misí tus ratsistés
   NOM xristos 3sg=hate=ACT ACC racists
   'Christos hates racists.'

9. ?o xrístos misí tin fasistikí téxni
   NOM xristos 3sg=hate=ACT ACC fascist art
   'Christos hates fascist art.'

Both *aGapó* and *misó* require accusative case nominal direct objects; *misó* furthermore prefers animate direct objects. Unlike most middle verbs of emotional response, *aGapó/misó* cannot take clausal complements. Thus, 10. and 11. below are unacceptable in Greek.

10. *to aGóri aGapái na xorépsi
    NOM boy 3sg=love=ACT SUBJ 3sg=dance=SUBJ=ACT
    'The boy loves to dance.'

11. *o stratiótis misí na affsi tin yinéka tu
NOM soldier 3sg=hate=ACT SUBJ 3sg=leave=SUBJ=ACT ACC wife GEN
'The soldier hates to leave his wife.'

The verbs *aGapó* and *misó* designate an emotional response directed toward another entity. Their experiencer subjects are thought of as agent-like because they are construed as active beings who focus attention on a distinct second entity. As such, *aGapó* and *misó* parallel verbs of perception. Both types of active verbs construe mental activity which originates with an active experiencer and is directed toward an external entity. Thus, *aGapó* and *misó* designate mental processes which are conceived of as analogous to prototypical transitive events: in both types of events a transfer occurs between an active primary participant and a less active secondary participant.

3.2.2 Middle Voice: Verbs of Thinking

Of the several verbs of thinking activity in Modern Greek, almost all are middle voice, and many of these are deponents. Five verbs of thinking are illustrated in 12. - 16.

12. o eNlimatías analoyístike to éNlima tu
NOM criminal 3sg=contemplate=MID/D ACC crime GEN
'The criminal thought deeply about his crime.'

13. sképtome eséna káTe méra
1sg=think=MID/D 2sg=ACC each day
'I think about you every day.'

14. fandázome ti zoí mu Déka xrónya apó símera
1sg=imagine=MID/D ACC life GEN ten years from now
'I'm imagining my life ten years from now.'

15. skarfístike ena kólpo
3sg=think up=MID/D ACC trick
'S/he thought up a trick.'

16. anarotiTíke yatí ítane anixtí i pórta
3sg=wonder=MID/D why 3sg=be=MID/D open NOM door
'S/he wondered why the door was open.'

Unlike perception events, in which the object of perception exists apart from the experiencer's perception of it, verbs of thinking typically involve an experiencer which establishes mental contact with an entity construed as internal to the mental realm. For example, in sentence 12. above the verb *analoyístike* designates thinking about a situation or event which is far removed from the experiencer's immediate circumstances. The object of mental contact is not directly observable and is construed as internal to the experiencer. The same can be said of mental objects depicted in sentences 13. and 14: *sképtome*, 'I think,' and *fantázome*, 'I imagine,'

respectively, designate events in which a mental object is construed to be intimately connected to the experiencer's thought processes, although the objects may or may not exist independently. The scene depicted in sentence 15., on the other hand, involves a mental object which is effected by an experiencer, since it comes into being as a result of the process designated by the verb *skarfIstike*. Finally, in 16., the mental object of the verb *anarotITike* designates a potential situation or event, i.e. that which is unknown or unrealized. As such, the object has no independent existence apart from the experiencer's thinking of it.

The above examples suggest that the active versus middle voice marking on verbs of perception and thinking, respectively, is semantically motivated. In perception events, the objects of perception typically exist separately from the experiencer, as opposed to objects of thought, which are construed as more intimately connected to the experiencer. Therefore, I maintain that the existence of an external object motivates the active voice in perception events, whereas the internal and often effected object motivates the middle voice in verbs which designate thinking events.

3.3. Less Initiative Mental Experience: Emotional Response

In this section, I discuss mental experience events in which an experiencer is construed passively, unlike the middle events discussed above. The middle marked events to be discussed here designate experiencers which undergo, rather than initiate, experience. In most cases, the middle marked verb construes a psycho-emotional state induced within a sentient being by an external force, where the affected sentient being is a nominative-case-marked experiencer subject, and the stimulus is a prepositional object or a complement clause. The main group of verbs discussed depict emotional response and emotive experience.

Less initiative mental experience is comprised of at least two different types of events. In the first, by far the more common, active versus middle voice corresponds to causation of a state versus resulting state, respectively. The argument put forward here is that middle verbs in this class differ fundamentally from middle verbs with initiative experiencers: they are not extensions from the transitive prototype in which an energy source or its analog is the starting point of the event. What I am claiming is that verbs which designate a one-participant induced state are conceptually basic as compared to those designating the corresponding two-participant event in which both a causer and an experiencer are focal participants. Therefore, of these two possibilities for encoding emotion events, the unmarked verbal construction consists of a verb stem which identifies a particular state, plus the middle morpheme which invokes the notion of a single participant's induced state. On the other hand, the active counterpart, in those cases where one exists, encodes a more complex situation, typically one in which an agent brings about a particular response in another individual.

In the second type of less initiative mental experience, both active and middle events select an inactive experiencer as the primary clausal participant. Here, the active/middle distinction corresponds to a focused versus defocused endpoint along an abstract scale which corresponds to energy flow in a prototypical transitive event.

3.3.1. Active Voice versus Middle Voice: Causation versus State

There are several middle/active pairs in which the middle marked event designates an emotional response, and the active, the causation of an emotional response. Examples 17. and 18. below illustrate two such pairs: the middle constructions in 17a. and 18a. depict an experiencer which is in a particular emotional state; the active sentences in 17b. and 18b. incorporate the agent responsible for the corresponding emotional response in another individual. Most middle verbs in this class require explicit mention of the stimulus, which is typically encoded as an oblique object or as a complement clause, and less frequently as an accusative object.

17a. stenaxoryéme ya tin iyía tu
1sg=worry=MID/A PREP ACC health GEN
'I'm worried about his health.'

17b. i iyía tu me stenaxorí
NOM health GEN ACC 3sg=worry=ACT
'His health worries me.'

18a. anastatónete káTe forá pu vlépi tus bátsus
3sg=upset=MID/A each time CMP 3sg=see=ACT ACC police
'S/he gets upset every time s/he sees the police.'

18b. to na di tus bátsus tin anastatóni
NOM SUBJ 3sg=see=SUBJ=ACT ACC police ACC 3sg=upset=ACT
'Seeing the police upsets her.'

In the most basic realization of an emotional event, which is an emotional state, the most prominent participant is an experiencer. As the conceptualization of the event increases in complexity and focuses on responsible rather than affected entities, voice marking reflects this change, resulting in an active voice structure which has an agentive participant as subject.

Sentences 19. and 20. below illustrate that not all middle marked verbs of emotion have active counterparts. However, the existence of deponents is natural and expected according to the present analysis, which claims that the middle marked stative event is the more basic of the two types of events.

19. drépete ya tin ftoxía tis
3sg=be ashamed=MID/D PREP ACC poverty GEN
'She's ashamed of her poverty.'

20. lipáme pu íne árosti i mána su
1sg=be sorry=MID/D CMP 3sg=be=MID/D sick NOM mom GEN
'I'm sorry that your mother is sick.'

Notice that the middle constructions in 19. and 20. are formally analogous to those in 17a. and 18a., respectively, since the verbs in both cases occur with non-affected

prepositional objects or sentential complements rather than canonical accusative objects.

In sentences 21. and 22. below, middle and active voice also correlate with basic state versus causation of a state. However, in each respective pair, the middle marked induced state and the active marked causative designate a different type of mental experience undergone by an experiencer.

21a. enDiaférete ya ta provlímata ton erGatón
3sg=interest=MID/A PREP ACC problems GEN workers
'He is interested in the workers' problems.'

21b. ta provlímata ton erGatón ton enDiaférun
NOM problems GEN workers ACC 3pl=interest=ACT
'The workers' problems interest him .'

22a. apelpízome me ton ánDra mu
1sg=lose hope=MID/A PREP ACC husband GEN
'I'm despairing over my husband.'

22b. me apelpízi o ánDras mu
ACC 3sg=deprive of hope=ACT NOM husband GEN
'My husband really upsets me.'

The middle construction in 21a. means that the entity designated as subject was interested in and personally involved with the workers' problems. It might be said of a foreman who truly cares about the welfare of the workers. Sentence 21b., on the other hand, is not understood in the same way at all. The active verb implies that the person interested was not in any way personally involved with the workers. It might be said of a sociologist who is studying the labor force or by a journalist who is preparing a story, but it would be an inappropriately made statement under the circumstances described in 21a. Likewise, in 22b., the active verb implies a less profound emotional experience as compared to the middle counterpart in 22a. The difference in quality of experience as reflected in the middle versus active marked events is a result of selecting the affected rather than the responsible entity as subject. When an experiencer is the primary clausal participant, the prominence afforded subject position enhances the affected state of the experiencer. On the other hand, when a cause is selected as subject, focus is shifted away from the affected entity, thereby diminishing the effect of the emotional experience.

3.3.2 Active versus Middle Voice: Endpoints

In the next type of middle/active pair to be discussed, both verbs encode stimulus-induced states in which the subject is a non-initiative experiencer. The middle and active events differ, however, in terms of the experiencer reaching or not reaching an endpoint along an abstract scale analogous to a path with an origin and a destination. Consider the following examples.

23a. anéxome to póno
1sg=suffer=MID/A ACC pain
'I'm tolerating the pain okay.'

23b. andéxo to póno
1sg=suffer=ACT ACC pain
'I'm feeling extreme pain.'

24a. Den anéxome to póno
NEG 1sg=suffer=MID/A ACC pain
'I don't feel any pain.'

24b. Den andéxo to póno
NEG 1sg=suffer=ACT ACC pain
'I can't bear the pain.'

In 23.-24., the middle versus the active structures are distinguished according to whether the experiencer does or does not reach her/his threshold of tolerance for pain. The middle structures in 23a. and 24a. mean that the experiencer feels a low level of pain, or none at all, as compared to the respective active structures, which mean that the experiencer reaches an endpoint, i.e. threshold for pain. The active structures are therefore more highly transitive, since they designate an event with an endpoint, as opposed to the middle structures, which designate an experiencer who does not reach an endpoint.[4] Note that in both the active and middle marked events, this abstract endpoint does not correspond to the morphosyntactic direct object, *to póno,* 'ART=ACC pain=ACC,' but rather reflects a point on a more abstract scale which is construed as analogous to a final state in a prototypical transitive interaction.

Further support for this analysis is provided in 25a.-b. below.

25a. Den andéxi na vlépi tin yinéka tu
NEG 3sg=suffer=ACT SUBJ 3sg=see=SUBJ=ACT ACC wife GEN

na kléi
SUBJ 3sg=cry=SUBJ=ACT
'He can't bear to see his wife cry.'
(He feels such strong emotion that he wants to cry.)

25b. Den anéxete na vlépi tin yinéka tu
NEG 3sg=suffer=MID/A SUBJ 3sg=see=SUBJ=ACT ACC wife GEN

na kléi
SUBJ 3sg=cry=SUBJ=ACT
'He can't stand to see his wife cry.'
(He doesn't tolerate her crying very well--he gets angry or nervous.)

In the active structure illustrated in 25a., the subject nominal is construed as having

reached an endpoint with respect to understanding another person's feelings, since the implication is that he suffers the same pain his wife feels when she cries. In 25b., on the other hand, no such implication is made. The mental event construed by the middle verb is that of a negative response toward his wife's crying. No rapport is established, as compared to the active structure, in which the endpoint of establishing rapport is reached.

The next verb to be discussed, *paTéno* 'to suffer, to undergo,' differs from the pair illustrated above in two ways. First of all, it is an active voice verb with no middle counterpart. It encodes a stimulus-induced emotive state in which a nominative case marked affected experiencer is the subject, and the stimulus is often an accusative case marked nominal. *paTéno* also differs from constructions illustrated above in that it is the maximally unmarked verb in Greek to designate negative experience. Thus, unlike middle marked verbs of less initiative experience, *paTéno* can designate both physical and emotional states. Consider the following.

26. i mitéra tu épaTe katáTlipsi
NOM mother GEN 3sg=suffer=ACT depression=ACC
'His mother went through a depression.'

27. tin épaTa
3sg=ACC 1sg=suffer=ACT
'I got mugged, robbed, assaulted, etc.'

28. i yeoryí épaTan meGáli zimyá
NOM farmers 3pl=suffer=ACT big=ACC loss=ACC
'The farmers experienced a great loss.' (i.e. There was a crop failure.)

Although the events illustrated in 26.-28. all single out a non-initiative primary participant, sentences 27. and 28. designate resulting states which emphasize physical rather than mental effect. I would like to suggest that this ability to construe both the physical and external as well as the mental and internal motivates the voice marking on the active verb *paTéno*, as opposed to middle verbs illustrated above which can only designate a mental state. Thus, just as external versus internal objects correspond to greater versus less transitivity in initiative mental experience events (e.g. 1.-5. versus 12.-16.), external versus internal effect on an experiencer corresponds to greater versus reduced transitivity in less initiative mental experience.

4. Conclusion

Voice and transitivity in Modern Greek is a tremendously complex system which requires a theory of language sufficiently flexible to accommodate subtle meaning differences encoded by voice marking, yet rigorous enough to explain why particular constructions do not occur. The present work thus attempts to account for a small subset of typical Greek middle constructions using a cognitive theory of language. I have explained active versus middle voice marking within the semantic domain of mental experience by appealing to the notion of transitivity as a gradient property of clauses. I have shown that mental events in Modern Greek are of two

types, Initiative and Less Initiative Mental Experience. In both cases, middle events are consistently less transitive than their active voice counterparts, and in some cases, the middle events are also less marked. These differences, which elude a strictly morphosyntactic account of voice, find a natural explanation when viewed in terms of a cognitively based theory of language.

Notes

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[2]I will also use the term 'deponent,' but I use it strictly to refer to the morphosyntactic form of a verb. Therefore, a verb is deponent only if there is no active form built from the same verb stem. According to my definition, then, a verb like *sónome*, 'to run out, to be used up,' is not a deponent, because it has an active form *sóno*, 'to save, to rescue,' although semantically the two are not obviously related. For the purpose of this paper, then, only verbs like *sképtome*, 'to think,' or *lipáme*, 'to be sorry,' are deponents, because neither of these have active voice counterparts.

[3]The following non-standard orthographic conventions have been used in the present work for typographical ease: /D/ = voiced interdental fricative, /T/ = voiceless interdental fricative, /G/ = voiced velar fricative, and /N/ = velar nasal. Voice marking is indicated as follows. MID/D marks a middle voice deponent, i.e., a middle marked verb with no corresponding active counterpart; MID/A marks a middle voice verb with a corresponding active form; ACT marks an active voice verb.

[4]There are also middle/active pairs with non-experiencer subjects that can be distinguished according to whether or not an endpoint along some abstract path is reached or not. Consider the following.

A1. askí tin DikiGorikí
3sg=practice=ACT ACC law
'S/he is a lawyer.'

A2. askíte stin DikiGorikí
3sg=practice=MID/A PREP=ACC law
'S/he is a legal apprentice (but will soon become a lawyer).'

The abstract analog of an endpoint or goal construed in A1. and A2. is the professional recognition and status one receives after having completed all necessary training and study required of lawyers. In the active structure, the person spoken of is a lawyer and therefore has reached this endpoint. The middle structure, on the other hand, construes an agent who has not yet become a lawyer but probably will soon.

Therefore, the middle event, as compared to the active, portrays an agent who has not yet reached the endpoint of professional recognition and thus is construed as less transitive.

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Speaker-Hearer Asymmetry as a Factor in Language Evolution: A Functional Explanation For Formal Principles Of Grammar*

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Many assume that the positing of an innate universal grammar (UG) forfeits any possibility of a functional explanation for why grammars have the properties that they do. Bates and MacWhinney (1979), for example, contrast the 'functionalist' model, in which the nature of grammars is determined and the child's acquisition of grammar is guided 'by the pragmatic and semantic structure of communication interacting with the performance constraints of the speech channel', with the 'autonomous syntax view', which posits 'abstract categories [and] innate clues about the range of possible human grammars' (1979: 168). It is clear that Bates and McWhinney see these positions as incompatible.

There is a way, however, that autonomous syntax and functionalism can be reconciled. For example, a grammatical principle might have become encoded in our genes by virtue of its being so successful in facilitating communication that the survival possibilities of those possessing it were enhanced. Thus a functional explanation would hold at the evolutionary level.

In this paper, I do in fact propose an explanation based on evolutionary pressure for certain principles of UG. In particular, I raise and attempt to answer the question of why a principle of grammar might become biologized.

It has frequently been suggested that many aspects of grammars have a plausible functional motivation, from predominant word order possibilities of predicates and arguments within clauses (Tomlin 1986) to the types of categories and rules out of which grammars are constructed (Creider 1979) to the principles that constrain their operation (Givón 1979). To the best of my knowledge, however, what has never been observed before is that those grammatical phenomena whose explanation is most convincingly attributed to some principle of UG tend to be those whose functional grounding is asymmetrical between speaker and hearer.

Let us begin with the UG principle of Subjacency, which in English is responsible for violations of grammaticality such as (1a-b)[1]:

(1) a. *What$_i$ do you wonder where John put ___$_i$?
b. *What$_i$ do you believe the claim that John ate ___$_i$?

Various scholars have pointed to a functional grounding for Subjacency (Givón 1979, Berwick & Weinberg 1984, Frazier 1985a). As they note, violations of this principle tend to be structures which create problems for the hearer in matching the displaced *wh*-element with its coindexed gap. However, it is rarely pointed out that Subjacency performs no particular service for the speaker, whose 'easiest' task would simply be to *'wh'* any Noun Phrase regardless of its subcategorized position in the structure. Hence, Subjacency exhibits a functional asymmetry.

The same point can be made with respect to Principle A of the Binding Theory (Chomsky 1981), for short 'Anaphor Binding'. Violations of this principle are exhibited in (2):

(2) a. *John$_i$ told Mary to help himself$_i$.
b. *John$_i$ thinks that himself$_i$ should be nominated.

While Anaphor Binding may help the hearer more efficiently to pair anaphoric elements and their antecedents, it seemingly complicates matters for the speaker, who, of course, is fully aware of the identity of the intended referent and is thus forced to make a 'personally'