



which the A argument is clearly an agent (and causally precedent) but the O argument is a proto-agent in some superevent of the event described by the predicate (e.g. the event for which the O received praise):

- (4) John<sub>[+cause]</sub> praised/thanked/greeted Bill<sub>[+cause]</sub>.

According to Blume such predicates tend to show dative marking on the O, again ostensibly due to the non-maximal contrast. We can distinguish three additional classes in which both participants are [+cause], depending on the distribution of [+aff]: verbs in which the O argument is [+aff] (e.g. *help*), verbs in which A argument is [+aff] (e.g. *depend (on)*, where the A is affected in some superevent, following Blume), and verbs in which both A and O are [+aff] (e.g. *fight*; Testelec 1998). Each class admits intransitive encoding across languages, and the latter class also allows various types of reciprocal encoding, corresponding to the symmetry of the thematic roles of each argument:

- (5) a. John<sub>[+cause]</sub> helped/aided Bill<sub>[+cause,+aff]</sub>.    b. John<sub>[+cause,+aff]</sub> needs/depends on Bill<sub>[+cause]</sub>.  
 c. [John and Mary]<sub>[+cause,+aff]</sub> fought.    d. John<sub>[+cause,+aff]</sub> fought (with) Mary<sub>[+cause,+aff]</sub>.

Another class are verbs in which the A is [+cause] but the O has no features whatsoever, corresponding to perception verbs and activity verbs where the O is a “root” argument that is not affected (Levin 1999):

- (6) a. John<sub>[+cause]</sub> saw/looked at Bill<sub>[ ]</sub>    b. John<sub>[+cause]</sub> wiped the table<sub>[ ]</sub>.

As Tsunoda (1981, 1985) notes, perception verbs often admit intransitive encodings. Finally, there are two argument verbs that do not describe dynamic events and thus have no causal chain, no proto-agent properties, and no proto-patient properties. These are symmetric predicates like *resemble* as in *John resembled the pope*. Following Croft (1993), though, these are “coerced” into a force-dynamic relationship, in which case the precedent entity is assigned a control feature and no affectedness is assigned (similar to (6)), though either participant may be coerced into this position (cf. also *The pope resembled John*).

In summary, we have distinguish and expanded most of the classes proposed by Testelec and Blume (I give their notation for each class here to indicate which classes they identified and which they did not):

(7)

Example	Featural Distribution+Causal Precedence			Testelec	Blume	Note
	A	→	O			
<i>make, kill, break</i>	[+cause]	→	[+aff]	IV/V	I	Core Transitive
<i>pull, take</i>	[+cause,+aff]	→	[+aff]	V	I	Transitive?
<i>walk (to), traverse, search</i>	[+cause,+aff]	→	[ ]	???	???	Self-directed motion
<i>praise, see, resemble (coerced)</i>	[+cause]	→	[ ]	VI/VIII	III	Psych/coerced statives
<i>speak to, ask</i>	[+cause]	→	[+cause]	I/II/III	II	Interactional, Nom/Dat
<i>help/aid</i>	[+cause]	→	[+cause,+aff]	II??	II??	Interactional, Nom/Dat?
<i>depend (on)</i>	[+cause,+aff]	→	[+cause]	II??	II??	Interactional, Nom/Dat?
<i>fight/quarrel with</i>	[+cause,+aff]	→	[+cause,+aff]	II	II??	Reciprocal

These classes plus the ones ruled out exhaust the 16 possibilities allowed by the distribution of binary [+aff] and [+cause] factors, suggesting that this approach can capture a restricted typology of verbal types. Presumably the exact nature of the proto-agent and proto-patient entailments that determine many of the [+aff] and [+cause] features will determine subclasses of each case, something I address briefly in the talk. Finally, this approach can be extended to single argument predicates as well, where there are no a priori force-dynamic chains. In this case [+cause] and [+aff] are determined solely by proto-role properties, producing three logical types, corresponding to unaccusative, unergative, and stative predicates:

- (8) a. The vase<sub>[+aff]</sub> broke.    b. The winner<sub>[+cause]</sub> smiled.    c. The winner<sub>[ ]</sub> is happy.

Thus the system proposes here utilizes the notion of causal chains and force-dynamic structure (assumed to underlie all verbal predicates, even when coerced) to constrain the set of possible verb classes. When combined with proto-role properties, this provides a classification that unifies, constrains, and expands previous classifications. I have focused here primarily on semantic classifications. Future work will necessarily involve predicting the morphosyntactic possibilities of each class from the semantics, though already the crucial notion of maximal distinctiveness that underlies transitivity falls out of these classifications.

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