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## **The sign of “Undue Contact” in the Object Use Test**

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Object Use is frequently assessed in apraxia testing (Cubelli, Marchetti, Boscolo, & Della Sala, 2000). The actual use would be unfeasible in a clinical setting for practical and hygienic reasons (e.g., use of a glass would require contact with the lips). Therefore, examinees are not asked to really use the objects, rather to show their use. Healthy controls easily pretend to use the object by showing the gesture associated with it (e.g., bringing the glass close to one's mouth and tilting it).

We have observed the performance of a left frontal stroke patient who appeared unable to mimic the use of objects and was compelled to complete the gesture ending it with a contact.

### **\*Manuscript**

PP is a 61 year old woman with 11 years of formal education. She was examined 30 days after her left ischaemic stroke. She was aphasic (pathological scores in both a picture naming test and in the Token Test, 47/80, cut-off=61, and 18/36, cut-off=26.5, respectively; Laiacina, Barbarotto, Trivelli, & Capitani, 1993; De Renzi & Faglioni, 1978) with preserved visual-spatial abilities. In the Limb Apraxia Battery (Bartolo, Cubelli, & Della Sala, 2008; Bartolo & Cubelli, 2014), PP performed below par in the tests assessing the production of intransitive gestures on visual command (6/15) and on the imitation of meaningless gestures (9/15). She executed the Object Use Test committing no apraxic errors (15/15) but finishing her gestures with unsolicited contacts.

PP wrote on the testing table with a pen; pounded on the desk with the hammer; threaded a needle in her jersey; put a cigarette in her mouth; and brought a glass to her lips.

Her behaviour was unexpected though we realised that we had never considered it a deviant conduct, hence never singled it out in formal apraxia assessments. We reanalysed the videos of patients recruited for a previous apraxia study (Bartolo, 2002) considering their performance with those objects which would not require a real contact for demonstration of use: Knife, hammer, pen, key, cigarette, needle, comb, and glass. Data on a small group of people with Alzheimer's Disease (AD) have been also collected. Their dementia severity, as assessed by the MMSE (Folstein, Folstein, & McHugh, 1975) ranged from 16 to 25 (mean = 20.6, sd =3.4).

Table 1 shows the frequency of “contacts” in PP and other left hemisphere stroke patients and people with AD. Although they showed deficits in gesture processing, people with AD never presented with unsought contact. The phenomenon of “undue contact” in object use assessment appears specific as it was observed only in stroke patients, independently of their type of apraxia.

This newly observed sign could be interpreted as a failure to pretend to use the objects (ending the gestures before actual contact) due to the inability of stopping the motor programme once it has been retrieved from procedural memory and initiated. Alternatively, unwanted contact could be accounted for within the frame of the automatic/voluntary dissociation often reported in apraxia: Patients could automatically use the objects (if the gestures are correct) or attempt to use them (if the gestures are wrong), but they could not voluntarily play-act their use.

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Table 1. Frequency of "undue contacts" in PP, left hemisphere (LH) stroke patients, and people with AD.

	Correct Use (%)		Wrong Use (%)	
	without contact	with contact	without contact	with contact
PP	0	100	0	0
LH Stroke (n= 8)	34	52	5	9
AD (n=7)	69	0	31	0