(11) $A \subseteq D^2$ retratto $\Rightarrow$ $f: A \to A$ continua ha un punto fisso

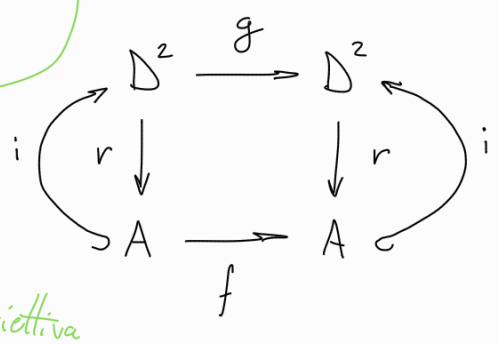
$A \subseteq D^2$ retratto $\overset{\text{def}}{\iff} \exists\, r: D^2 \to A$ continua $\mid r \circ i = id_A$

$g = i \circ f \circ r : D^2 \to D^2$

Corollario 4.2.5: $\exists\, x \in D^2 \mid g(x) = x$

vale anche per $i \circ f \circ r$

$r \circ g = \overbrace{r \circ i}^{id_A} \circ f \circ r = f \circ r$



suriettiva

$r(D^2) = A$
$f(A) \subseteq A$
$i(A) = A$
$\Rightarrow g(D^2) \subseteq A$

$(f \circ r)(x) = (r \circ g)(x)$

$f(r(x)) = r(g(x)) \Rightarrow f(r(x)) = r(x)$ ✓

$= r(x)$