

4NF Decomposition

Movies2 (movieid, genre, theme)

$\underbrace{\text{movieid} \Rightarrow \text{genre}}$

$\text{movieid} \Rightarrow \text{theme}$

M11 (movieid, genre)

Key: movieid, genre

$\text{movieid} \Rightarrow \text{genre}$

In 4NF

↑ Trivial

M12 (movieid, theme)

Key: movieid, theme

In 4NF

$\text{movieid} \Rightarrow \text{theme}$

↑
trivial

Movies₁ (movieid, genre)

key: movieid, genre

In 4NF

movieid $\Rightarrow$ genre

Trivial

because

movieid, genre
are all the attrs
in the relation

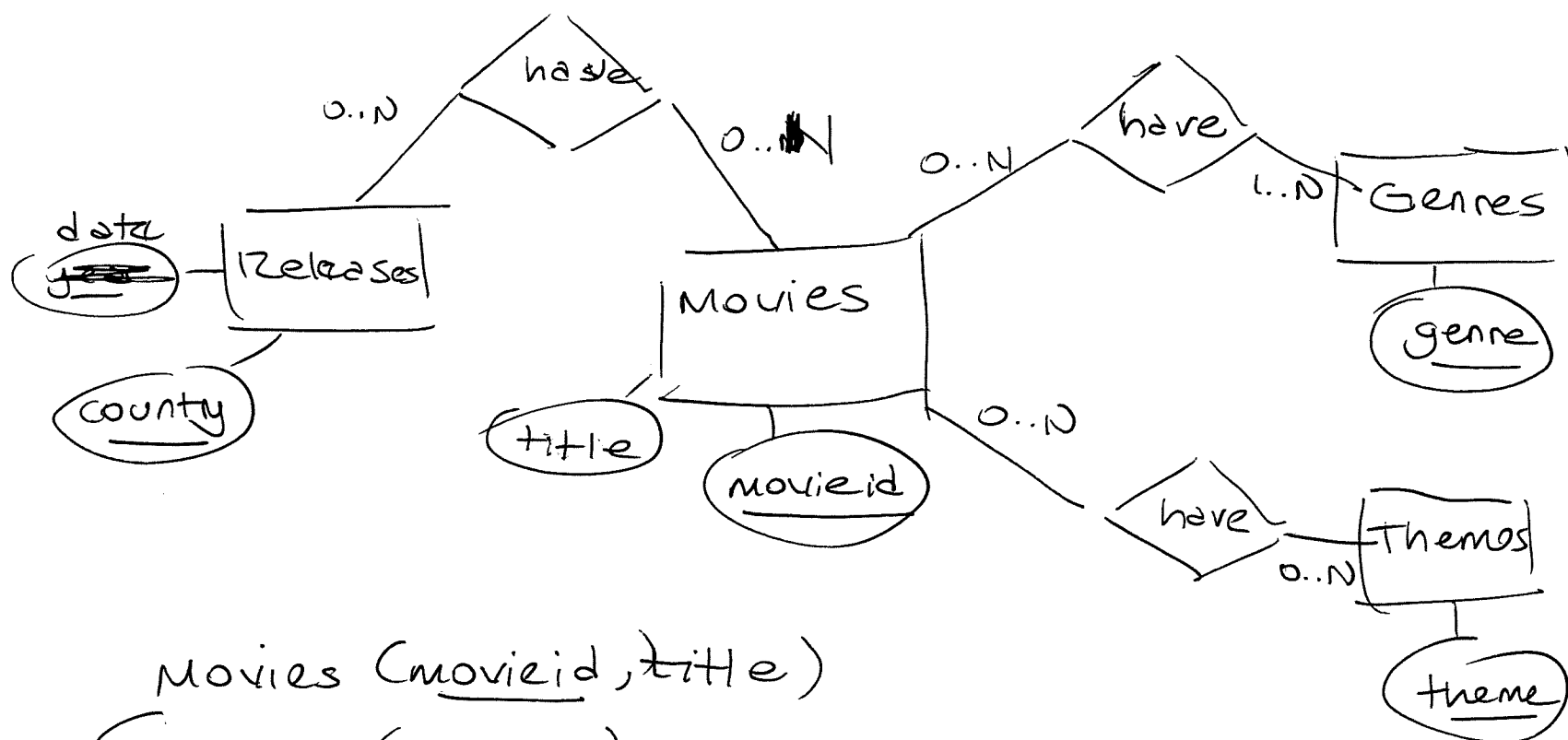
Movies₂ (movieid, genre, theme)

Key: movieid, genre, theme

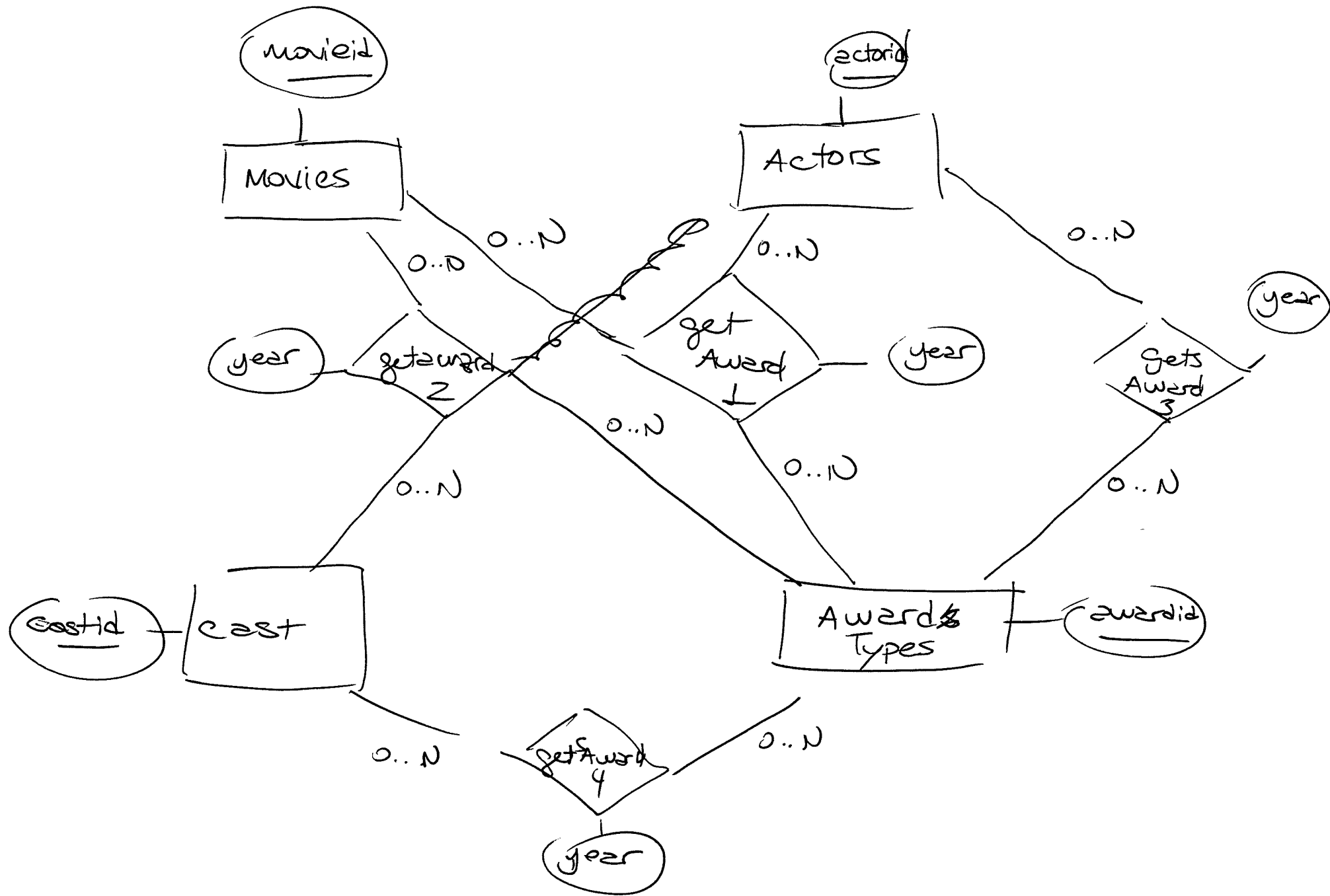
Not in 4NF

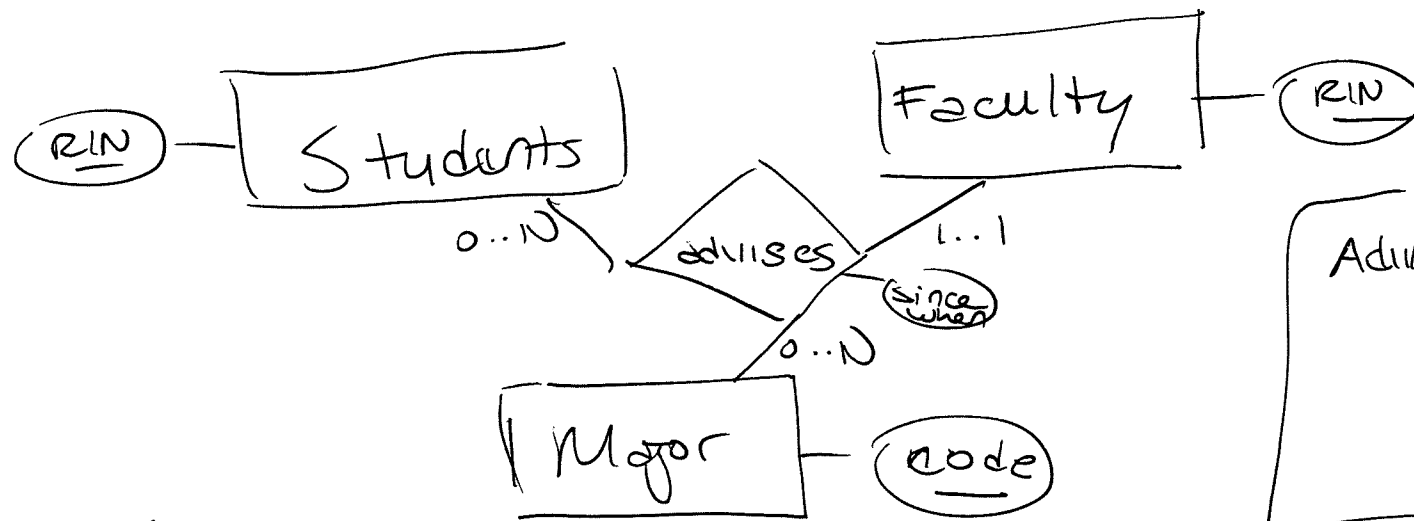
movieid $\Rightarrow$ genre

movieid	genre	theme
1	→ Action	Apocalypse
1	→ Sci-Fi	Romance
1	Action	Romance
1	Sci-Fi	Apocalypse



Movies (movieid, title)
 {
 Genres (genre)
 Themes (theme)
 }
 Releases (date, country) ~~3 movieid~~
 MovieThemes (movieid, theme)
 Movie Genres (movieid, genres)
 Movie Releases (movieid, date, country)

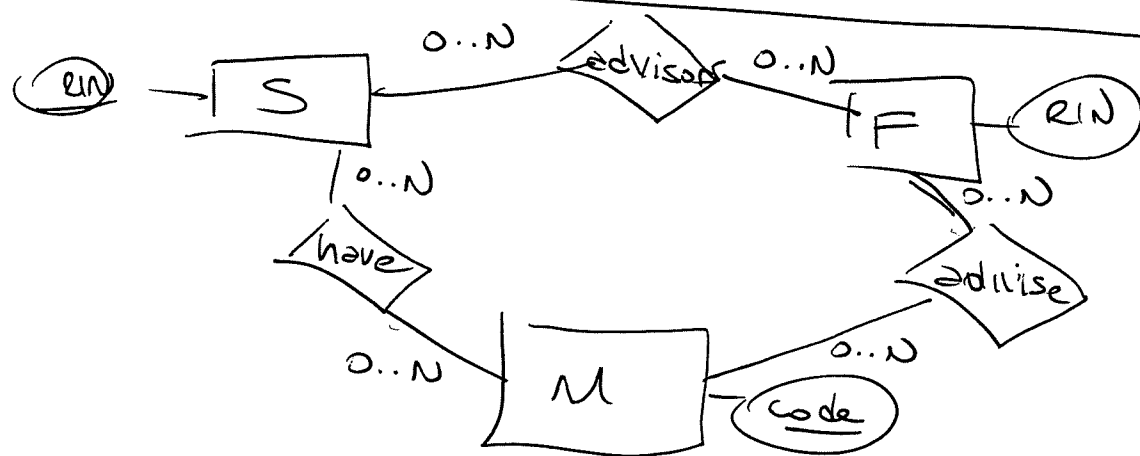




Advises(studentRIN,
majorcode,
facultyRIN,
sincewhen)

Advises(SRIN, code, ~~FRIN~~)

studentRIN majorcode → facultyRIN



R1 (SRIN, FRIN)
R2 (FRIN, code)
R3 (SRIN, code)

SRIN code → FRIN

no tuples without subscript
LOSSY DECOMPOS.

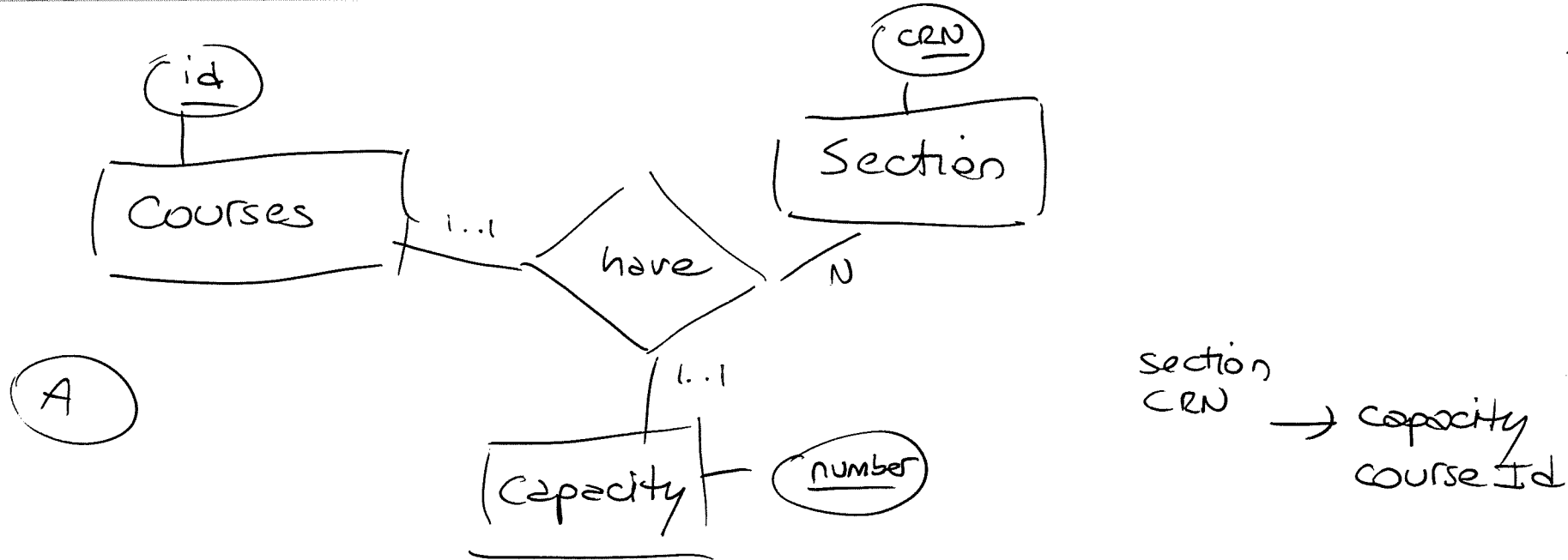
SRIN	FRIN	code
SRIN1	FRIN	code
SRIN	FRIN3	code

ActorsMovieAwards(movieid, actorid, awardid, year)

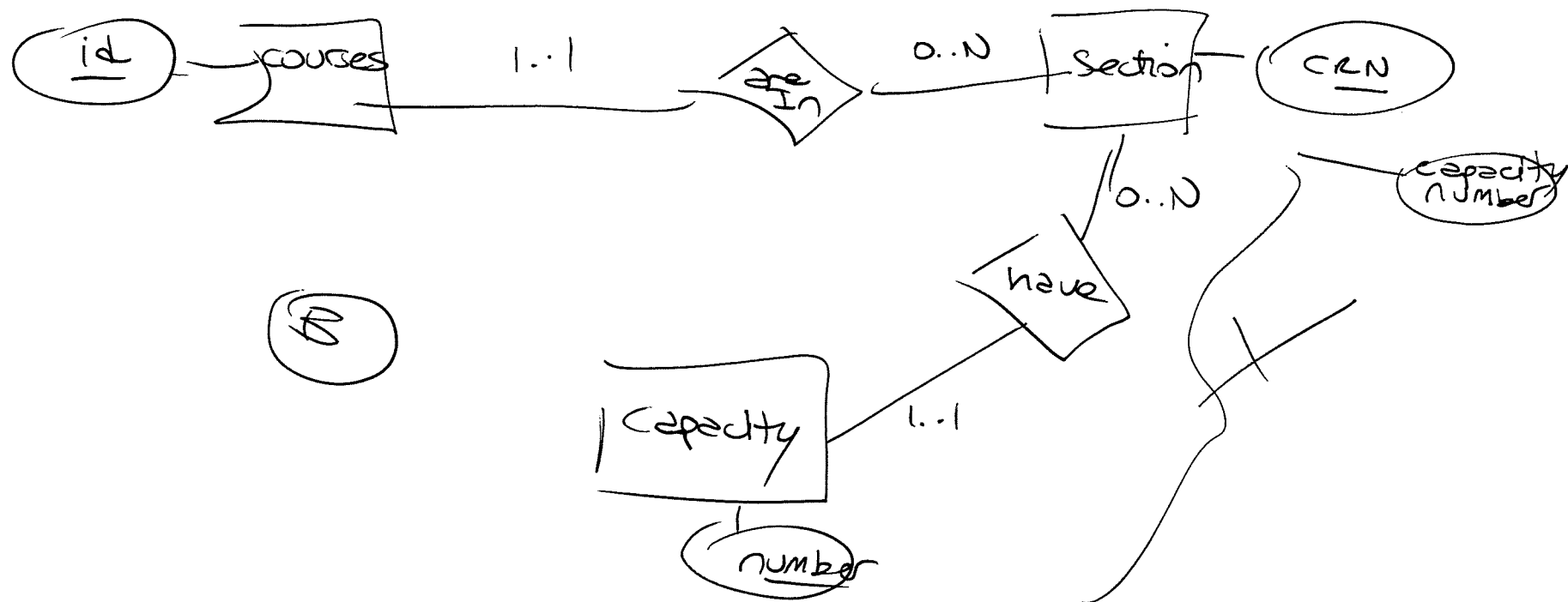
CastMovieAwards(movieid, castid, awardid, year)

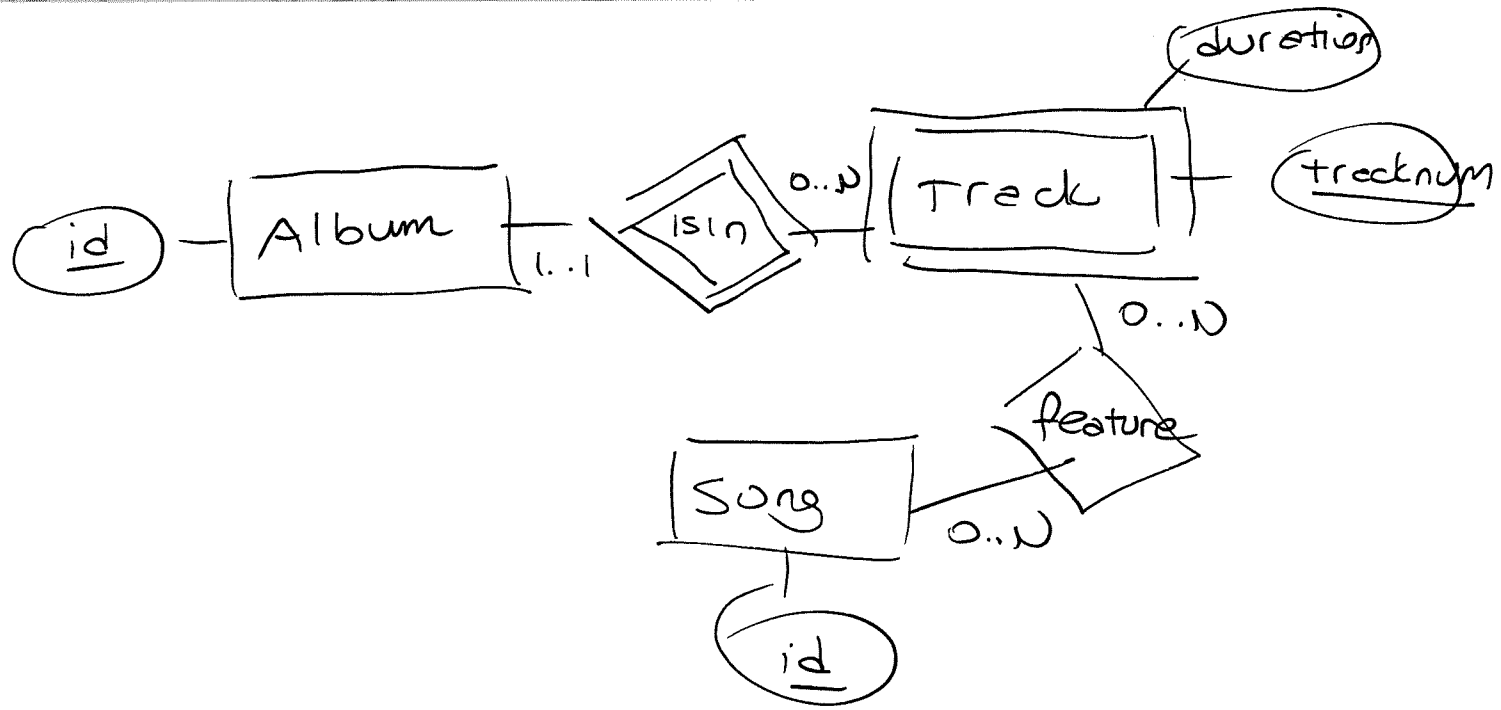
CastAwards(castid, awardid, year)

ActorsAwards(actorid, awardid, year)



Section (CRN, capacityNum, courseId)





Album (id)

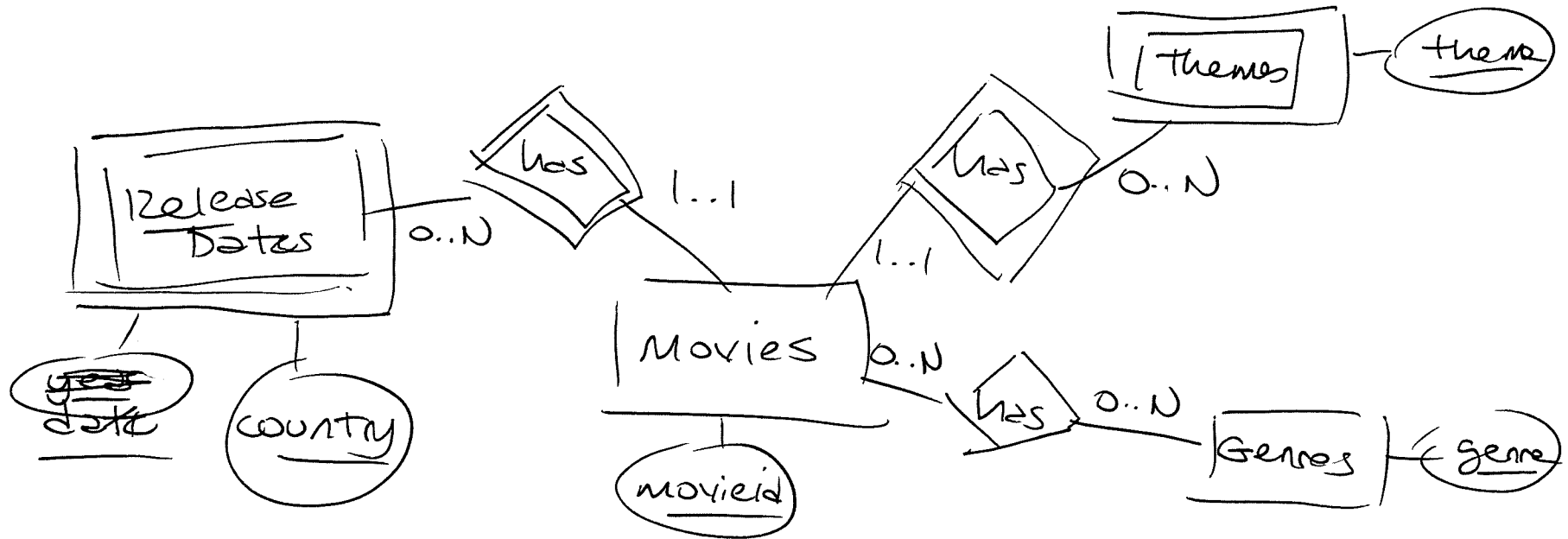
Song (id)

Track (AlbumId, Tracknum, duration)

Feature (SongId, AlbumId, TrackNum)

~~Weak~~ Entity ~~Model~~

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Movies(movieid)

Genres(genre)

Release Dates(movieid, date, country)

Themes(movieid, theme)

Movie Genres(movieid, genre)